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GEORGE MYGATT FISK, PH.D.

PROFESSOR OF COMMERCE, UNIVERSITY OF ILLINOIS

AND

EDWARD D. JONES, PH.D.

JUNIOR PROFESSOR OF COMMERCE AND INDUSTRY, UNIVERSITY OF MICHIGAN

THE ECONOMIC HISTORY OF THE UNITED STATES

ERNEST LUDLOW BOGART, PH.D.

DOMINION OF CANADA
PACIFIC OCEAN
ATLANTIC OCEAN
GULF OF MEXICO
MEXICO
GRAIN AND FRUITS.
WOOL AND LIVE STOCK.
SPRING WHEAT.
CORN AND WINTER WHEAT.
COTTON.
DAIRYING AND MIXED FARMING.
WASHINGTON
OREGON
IDAHO
MONTANA
WYOMING
NEVADA
UTAH
COLORADO
ARIZONA
NEW MEXICO
CAL.
N. DAK.
S. DAK.
NEBRASKA
KANSAS
OKLA.
TEXAS
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THE ECONOMIC HISTORY

OF

THE UNITED STATES

BY

ERNEST LUDLOW BOGART, PH.D.

PRINCETON UNIVERSITY

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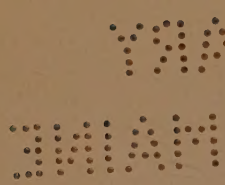

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To

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PREFACE

THE purpose of this book is not to rehearse the events common to political and constitutional histories of the United States, but rather to emphasize the points neglected by them. The keynote of all American history, from whatever standpoint it may be written, is found in the efforts of a virile and energetic people to appropriate and develop the wonderful natural resources of a new continent and there to realize their ideals of liberty and government. The economic history of the United States is largely the story of the achievements of a people working under free competition, untrammeled by custom, tradition, or political limitations, and whose changing conditions of environment constantly compelled new adaptations and promoted ingenuity and energy of character. The history of this economic struggle is not one whit less interesting or dramatic than the political history of the same period, while it is absolutely essential to a thorough understanding of the latter.

When this book was put into manuscript, this story had nowhere been told in connected form, and it was to supply this lack that it was written. Beginning with the explorations and settlements that led to the colonization of the continent, there is traced the growth of industry, agriculture, commerce, transportation, population, and labor, from the simple, isolated agricultural communities of the colonies to the complex industrial and commercial society of to-day. In each period the important events are emphasized, and the attempt is made to bring out clearly their causal relations. While the chronological order of presentation has been followed in general,

related chapters are so grouped that the thread of the narrative is broken as little as possible. Owing to the inaccessibility of many of the data upon which the reasoning and conclusions are based, as well as the lack of any other single volume covering just the same ground, it has been thought desirable to state clearly though concisely the chief facts involved. Where the statistical form of presentation was possible, they have been condensed into a statistical table. The endeavor has been made, however, to keep the facts subordinate and to interrupt as little as possible the continuity of the narrative.

The book has been written for high-school as well as college students. An effort has been made to adapt the subject matter to students of both grades by the addition of a number of Suggestive Topics and Questions, with Selected References at the end of each chapter, which can be used for further research at the discretion of the teacher. The chapter bibliographies contain a few only of the most accessible references; a full bibliography is appended at the end of the book.

My acknowledgments and thanks are due many friends for aid and encouragement during the preparation of this volume, but especially to Professors G. M. Fisk, of the University of Illinois, and E. D. Jones, of the University of Michigan, for reading the manuscript and making many valuable suggestions; to my colleagues, W. M. Adriance, E. S. Corwin, Edgar Dawson, C. H. McIlwain, Royal Meeker, W. S. Myers, H. R. Shipman, C. W. Spencer, H. R. Spencer, and W. L. Whittlesey, for reading portions of the proof and correcting errors of fact and expression. But most of all my sincere thanks are due my wife, whose assistance and sympathy have greatly lightened the task of writing this book in every stage of its preparation.

ERNEST LUDLOW BOGART.

PRINCETON UNIVERSITY
October 20, 1907.

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INTRODUCTION

CHAPTER I

THE LAND AND ITS RESOURCES

1. The conditions of economic development. — The main conditions of the industrial growth of any country consist of two factors — the character of the people and the natural resources. Only when the gifts of Nature are bountiful and are intelligently utilized by man can a nation attain to the highest degree of strength and prosperity. The presence of rich natural resources alone has not been sufficient to secure the development of a weak, ease-loving race like the Latin-American, nor has mere growth in numbers, as in China or India, been enough to make the nation wealthy and strong. On the other hand, even a bold, vigorous race like the Scandinavian has not been able to make great advance in an inhospitable country like Iceland. In the territory now included in the United States, a virile, energetic people found extraordinary opportunities for industrial development, and devoted themselves to the exploitation of the natural resources with wonderful success. The keynote of the national history of the United States is to be found in this work of winning a continent from Nature and subduing it to the uses of man. A truly gigantic task, it has absorbed the main energies of the American people from the beginning, and has been approached in significance only by the struggle to preserve the Union. Inevitably it has left its impress on the character and ambitions of the people. For this reason, says Woodrow Wilson, "the history of the country and the ambitions of its people have been deemed both sordid and mean, inspired by nothing

better than a desire for the gross comforts of material abundance; and it has been pronounced grotesque that mere bigness and wealth should be put forward as the most prominent grounds for the boast of greatness. The obvious fact is that for the creation of the nation the conquest of her proper territory from Nature was first necessary; and this task, which is hardly yet completed, has been idealized in the popular mind. A bold race has derived inspiration from the size, the difficulty, the danger of the task. Expansion has meant nationalization; nationalization has meant strength and elevation of view."

2. The character of the people. — Combining the best characteristics of many of the best stocks of Europe, the American people have yet developed some distinctive traits. They are characterized by qualities of nervous energy, intelligence, independence in thought and method, boldness in initiative, and perseverance in enterprise. The absorption in material pursuits and the over-emphasis of the value of material success, in part the result of inheritance and selection, has been largely developed as a result of the industrial environment. Partly as a result of these same forces and partly inherited, a peculiar aptitude in the invention and use of labor-saving machinery has been noted by all writers as a special characteristic of the American. Equally quick in devising original methods or adapting the ideas of others, he has applied machine methods to every line of production. Called into being at first by necessity, American ingenuity has been fostered and developed, and has found probably its best application in the invention of complicated tools.

3. Area of the United States. — The second great factor in the development of the country has been its wealth of natural resources. Of these we must consider first the extent of territory. By the treaty of Paris, Sept. 3, 1783, the United States came into possession of an immense domain of 827,844 square miles. Since that time the area of the United States has been vastly increased, by purchase, by conquest, and by cession, until, in 1900, the United States consisted of 3,726,500 square

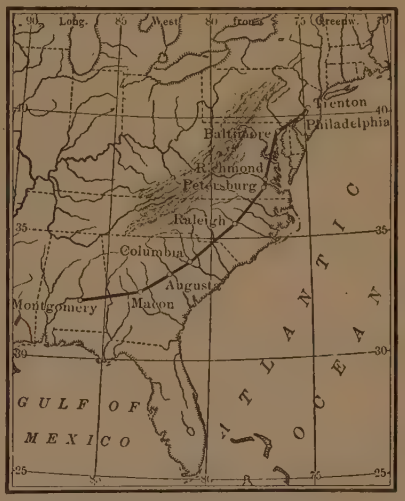
miles or about one fourteenth of the entire land surface of the earth. Continental United States, exclusive of Alaska or our island possessions, contains 2,972,584 square miles of land surface, or somewhat less than Europe, which has an area of some 3,700,000 square miles.

4. The coast line. — The advantages to a nation of having a seacoast well provided with numerous bays and harbors are obvious. Not less important for the internal commerce of a country is a system of long and navigable rivers. In both these respects the United States is wonderfully well provided. The Mississippi River with its tributaries drains over 1,000,000 square miles of territory in the very heart of the most fertile region of the country. Cities more than 1000 miles inland have direct water communication with the seaboard, and coal is transported more than 1000 miles from Pittsburg to the upper reaches of the Missouri River. Altogether, it is estimated that there are 18,000 miles of navigable rivers in the United States, while the shore line of the Great Lakes extend for at least 1000 miles more. The coast line on both oceans, including indentations, is not less than 18,000 miles in length, which gives about one mile of shore line for each 165 square miles of surface. Europe, which is the most favored in this respect of any division of the Old World, is estimated to have 19,500 miles of seacoast, of which 3000 are within the Arctic circle, leaving only 16,500 available for commerce, or one mile of coast for each 224 square miles of surface.

5. Water power. — In this connection should be mentioned the amount of water power available for industrial use in the United States. In colonial days this was of chief importance and determined the location of many a town. With the invention of the steam engine and the use of coal as a motive power, industry became less dependent upon water power, but with the rise of electrical appliances and the harnessing of our streams and falls for their service, we are beginning to value this item in our national wealth more highly. "It is probable," says Shaler, "that, measured in horse power or by

NAVIGABLE WATER-WAYS

manufactured products, the energy derived from the streams of this country is already more valuable than those of all other lands put together." The most valuable water powers are found east of the Mississippi River and west of the Cordilleran chain. Even in the case of the best water power there are, however, in spite of its cheapness, certain drawbacks: it must be applied where it is found, except as it is used to develop electric power, and is subject often to serious seasonal limitations. The energy which is obtained from coal, on the other hand, may be developed where it is needed, at any time and to any amount. On this account the presence of coal has proved a more important factor than water power in determining the concentration of the population and the regional distribution of industries.



THE FALL LINE OF RIVERS

Towns sprang up at the fall line of most of the rivers, owing to the presence there of water power and to the interruption to navigation at that point.

6. Coal. — Fortunately for the human race, coal is widely distributed throughout the world, although Europe and the United States to-day supply practically all the coal now mined. Professor Tarr estimates the actual coal-*producing* area in the United States at not over 50,000 square miles, of which only a small part is being worked. According to the United States Geological Survey there are 335,000 square miles of coal-bearing strata in this country, but much of it is too thin or impure to be available for industrial use. It serves, however, in many localities as domestic fuel, and few places in

the United States are far removed from burnable coal. By far the greatest part of our available supply is bituminous, the area which is underlaid with anthracite being not more than 484 square miles. Not merely in the extent of the area underlaid with coal are we favorably situated, but our superiority over Europe and the rest of the world is made more evident by a comparison of the thickness of the seams, the depth, the dip, and the cost of working. In all these respects we have an advantage.

7. Iron. — Next in importance to the fuel supplies of the United States rank its stores of iron ore. These exist in large quantity and are widely disseminated, though in the main they occupy three great fields. On the east the Appalachian field, which stretches from Newfoundland to central Alabama, contains large deposits of rather impure ore. The deposits of the Lake Superior region are extensive and of remarkable purity, and are so situated that economical methods of mining and transportation to market are possible. In the Cordilleran district there are practically inexhaustible supplies of iron, but owing to the absence of coal suitable for smelting, the ore remains undeveloped except for local purposes. Colorado forms the only important exception. The conditions of iron production in the United States are set forth as follows by Professor Tarr: "An iron ore, in the present state of the iron industry, must occur in a very favorable position as regards market; it must be of good quality and considerable quantity, and favorably situated for extraction and smelting. Iron is now so cheap that, where mining operations are difficult, as, for instance, where the mine is deep, the vein narrow, gangue abundant, or transporation difficult, it cannot be mined."

Iron and coal, more than any other mineral substances, form the material basis of our industrial prosperity, and in the possession of large supplies of both, the United States is greatly blessed.

8. Other metals. — Next after iron, *copper* ranks as the

most necessary in the industrial arts. In primitive civilizations, as among the Indians, it was especially valuable because easily worked. With the discovery of processes for smelting iron, copper lost its earlier importance, which it has regained only in the last decade or so as the result of a rapid extension in the use of electricity. The United States is the greatest copper-producing country in the world, turning out over half of the total amount. Most of it is mined in the States of Montana, Michigan, and Arizona.

Lead and *zinc* are usually found associated; in the circumstances of their distribution they resemble copper, with which they are frequently found united. In the production of both these, the United States is surpassed by Europe. A comparatively small amount of *aluminum* is produced here, but this, with other metals, is of minor importance.

Of far greater value, though of subordinate importance in the industrial arts, are the so-called precious metals — *gold* and *silver*. In the production of both of these, the United States ranks second, the first places being held respectively by the Transvaal and by Mexico. These metals occur plentifully throughout the country, but all the important deposits are found in the Rocky Mountain region. Since the discovery of gold in California, the Appalachian deposits have remained practically unworked. Colorado heads the list of States as a producer of gold, and Montana of silver (1907).

9. Other minerals. — In addition to the metals some of the non-metallic mineral products of the United States should be mentioned. The country is well supplied with *building stone*, though, owing to their weight and size, the production of all but the best varieties remains local. *Phosphates*, of which large deposits have recently been developed in South Carolina and other southern States, and other mineral fertilizers are of growing value as the need of enriching the exhausted soil becomes greater. *Salt* is obtained mainly from the deposits of rock salt in Pennsylvania, New York, and several other States, though considerable is obtained by the evaporation of

water in Utah and Nevada. Other minerals, of less importance, as *cements, clays, grindstones, graphite,* etc., can only be mentioned.

10. Animal life. — The principal animals, as also the vegetable products, which do not constitute the original resources of the country but are rather the results of man's efforts, will be treated elsewhere under the appropriate headings. In this connection will be noted simply the value of the native fauna. The animal life indigenous to North America had enormous economic significance to the aborigines, less to the colonists, and has scarcely any to us to-day. Of all the fauna of native origin the turkey is the only one which has been domesticated. To the Indian the wild game, such as deer, buffalo, mountain sheep, etc., were of greatest economic importance, since they furnished him with food, and the materials for clothing, shelter, weapons, and other necessaries. To the early colonist and fur-trader the fur-bearing animals, such as the beaver, squirrel, mink, sable, badger, fox, and weasel, were more valuable. The presence of quantities of game in the neighboring forests was moreover of considerable importance to the colonist, as he was thus able to supply his table and vary his diet with a minimum expenditure of effort. Quantities of edible wild fowl too passed overhead every year, as pigeons, turkeys, prairie chickens, ducks, geese, quail, etc. To-day these have been practically exterminated, or a small remnant only survives under the protection of strict game laws.

Of far greater importance from an economic standpoint are the fishes, the supply of which has not been so easily reduced. The salmon of the North Pacific coast stands easily first among these; followed by the cod, mackerel, herring, and shad of the Atlantic coast; and white fish, lake herring, and sturgeon of the Great Lakes. Oysters, gathered by the Indians in immense numbers, still form the basis of a lucrative industry on the middle Atlantic coast. The exploitation of all these native resources of the United States has proceeded recklessly and ruthlessly, and only recently has some effort been made to

conserve and maintain for future generations by scientific methods our native animal and vegetable wealth.

11. The forest. — The forests of the United States cover an area of about 700 million acres, or more than 35 per cent. of the area of the country. Of these by far the greater part is found in the section east of the Mississippi, which originally was a vast continuous forest. In the northern States there stretched the great white pine forest, from which most of our lumber has come, from colonial days to the present; south of this in a broad belt lies the southern pine forest, whose most important tree is the yellow pine. In the Mississippi valley are found the hardwood forests of oaks, hickories, ashes, gums, etc. West of the Mississippi stretches a forestless, often treeless, area of millions of acres; with the Rocky Mountains begins again the coniferous interior forest, and still further west the Pacific coast forest. In this interior section the chief lack has always been water rather than wood.

"Our civilization is built on wood. From the cradle to the coffin, in some shape or other, it surrounds us as a convenience or a necessity." The early settlers drew upon the forests for food, fuel, and shelter. And yet the dense woods of the Atlantic coast, which had to be cleared before crops could be raised, and which often concealed hostile Indians and animals, came to be regarded rather as an obstacle than a blessing. Vast areas were ruthlessly burned down and the land denuded of its forest growth. This lavish waste of one of our most important natural resources has persisted almost down to the present time, and we are only now beginning to realize the necessity and possibility of preserving and increasing this source of wealth.

12. The fertility of the soil. — Among the valuable resources of a country should be included a good climate and a fertile soil: together, these are of great importance in promoting the welfare, prosperity, and material comfort of the people. Considered as a whole, the fertility of the soil of the United States is remarkably great, but this can best be seen by describing

separately the six physical regions into which the country is usually divided. These are the following:

(1) The Coastal Plain Region, although not very fertile, was the portion of the country first settled. Not more than 12,000 square miles is untillable, it is well forested, and suited to the growth of wheat, corn, tobacco, and cotton. Furnished with unrivaled water power at the falls of the rivers and splendid harbors at their mouths, this region has been the seat of many large and important cities.

(2) The Appalachian Region contains the greater part of the States of New York, Pennsylvania, West Virginia, the Carolinas, Georgia, Tennessee, Kentucky, and Ohio. "Taken altogether, this mountain system is perhaps the finest region for the uses of man that the world affords; its great length, of more than 1500 miles from north to south, gives it a range of climate such as would be had in Europe by a mountain-chain extending from Copenhagen to Rome. The total area of this Appalachian district, mountains as well as table-lands, is about 300,000 square miles. This is an area equal to near thrice the surface of Great Britain." [1]

(3) The Middle Prairie and Lake Region has an exceedingly fertile soil and an abundant rainfall; in the South, indeed, the moisture is excessive except for such plants as sugar, cotton, and rice, which form the staple crops of the lower Mississippi. The soil of the prairies is exceedingly fertile and is capable of supporting an immense population. Owing probably to glacial action the land is very level and there are no great forests in this section of the country. The natural advantages of this section for water transportation and for the cheap construction of railways are remarkable. The Mississippi River and its tributaries, the Ohio and the Missouri, are navigable for over 10,000 miles, while for fully half that distance they are accessible by vessels of considerable size. On the north the Great Lakes offer unrivaled facilities for water transportation, and with the "Soo," Welland, and Erie canals

[1] Shaler in Winsor: Nar. and Crit. Hist., IV, p. iv.

afford an outlet to the ocean for the agricultural and mineral products of the Northwest.

(4) The Great Plains or Steppe Region are a treeless expanse of grass lands. As a result of deficient rainfall, agriculture is impossible except where irrigation is used or along the river bottoms. Consequently, the region is given over mainly to grazing and stock raising.

(5) The Cordilleran or Plateau Region is, next after the Himalaya system, the most extensive region of great altitude in the world. Probably nineteen twentieths of its lands are irretrievably barren, while their great height reduces much of the land to the east to a condition of sterility. They contain, however, immense mineral wealth.

(6) The Pacific Slope Region is of great fertility, well watered, and with an exceedingly equable and attractive climate. It is the garden spot of the United States. Unfortunately, the coast of this region is broken by few harbors or navigable rivers, and its commercial development is therefore unlikely to equal that of the less fertile Atlantic coast region; it is also separated by a wide ocean from industrially undeveloped countries.

13. Temperature. — Next in importance to the fertility of the soil may be ranked the distribution of temperature and rainfall. Temperature has both a direct influence upon man and an indirect influence through its effect upon the plant and animal life at his disposal. A cold climate seems best adapted to call forth those virtues which are helpful to economic progress. Those portions of Europe which have sent forth the most energetic peoples and have developed the highest civilization are situated between the lines of forty and seventy degrees average annual temperature. The temperature of the United States is substantially the same as that of western Europe, the mean annual temperature being 53° F., though the extremes of heat and cold are much greater in this country than in Europe.

A certain minimum of heat, too, is necessary for the

development of plant life. The temperature required to start the dormant activities of plant life is usually given as 43.8° F., and the northward movement of the isotherm of this temperature marks the advent of spring. For the full development of vegetable life, however, a much greater amount of heat is required, which is secured during the summer months.

14. Rainfall. — Of not less importance than the temperature is the amount and distribution of moisture. An annual rainfall of at least 20 inches is essential to agriculture, districts with less than that being suited only to grazing, while a rainfall much exceeding 50 inches produces a rank growth harmful to most of the plants grown in the United States. The average annual rainfall of the United States is 29.6 inches; east of the one hundredth meridian, however, the average is much higher and gradually increases toward the east and southeast. West of the one hundredth meridian the rainfall decreases as one proceeds to the west and southwest, the temperature rising as the rainfall declines. About three quarters of the population are found in the regions enjoying an annual rainfall of between 30 and 50 inches, the conditions there being most propitious for sustaining a dense population.

15. Climate and economic development. — Several advantages result from the possession by the United States of this varied yet well-balanced climate. Owing to the wide variations in the climate and character of the land there exists an immense variety of plant life. The danger of a general failure of our staple agricultural crops is slight, for a loss in one part of the country is almost certain to be made good in another. A certain stability is thus given to agricultural products and prices. Another advantage exists in the variety of crops which such a wide range of climate ensures. Not merely does the United States lead all countries in the production of dairy products, corn and wheat, of coal, iron, copper, and lead, but the greater part of the lumber, meats, tobacco, cotton, gold, silver, and petroleum which enter into the world's trade come from its forests and fields. This diversity of climate and

resources has meant great diversity of occupations with attendant differences of interests, habits of living, and modes of thought. While this fact has had a certain influence in dividing the people into sections with opposing interests, on the whole it has made for broadness of view and catholicity of interests.

In its direct effect upon the race which has grown up in the New World, the environment seems to have made for a stronger and hardier people than any of those of the Old World. The best available statistics on this point are probably those gathered by Dr. B. A. Gould, during the Civil War, which are based upon measurements of over 1,000,000 soldiers. The main results are briefly summarized in the following table:[1]

PHYSICAL MEASUREMENTS OF WHITE SOLDIERS (AVER. AGE 21 YEARS)

	Height (in.)	Weight (lbs.)	Circumference of Chest (Inches)	
			Full Inspiration	After Inspiration
New England	67.9	139.4	36.7	34.1
Middle States (N. Y., N. J., Pa.)	67.5	140.8	37.1	34.3
Ohio and Indiana	68.4	140.8	37.5	34.9
Coast Slave states	68.2	140.9	36.6	34.2
England	66.6	137.6	36.9	34.3
France, Belgium, and Switzerland	66.5	137.8	36.8	34.3
Germany	66.7	140.3	37.1	34.7

From this it will be seen that the European stock has improved during the long residence in America, and that the American of to-day is better developed physically than his Old World cousin. "When one considers all these things," says Channing, — "the climate and rainfall of the United States, its physical configuration, its adaptability to the service

[1] U. S. Sanitary Commission Memoirs, vol. II, pp. 104, 277, 403.

of civilized man, its fertile soils and magnificent water powers, its inexhaustible mineral resources, and the effect of this environment on the physical body, — one must admit that the European race has gained by its transfer from its ancient home to the soil of the United States." And one must also appreciate, it may be added, the effect on their development of the remarkable environment and wonderful resources in the midst of which the American people have worked out and are working out their economic and social destiny.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER I

1. What relation, if any, exists between the shape and distribution of the land masses of the earth and man's development? [Shaler, The United States, I, chap. 1; Winsor, Narrative and Critical History of America, IV, 1.]

2. Does the configuration or situation of a locality determine the character or occupations of its inhabitants? [C. C. Adams, Commercial Geography, chaps. 2, 3.]

3. Why has the Cordilleran system been called "the curse of the continent"? Is it? [Shaler, in Winsor, Narrative and Critical History of America, IV, 5.]

4. Is there any connection between the presence of forests and the amount of rainfall? [Gannett, in Bulletin of American Geographical Society, July, 1901.]

5. What effect does the Gulf Stream have upon the climate of the United States? [Patton, Natural Resources of the United States, 72; H. Gannett, "Errors in Geography," in Bulletin of American Geographical Society, July, 1901.]

6. Does it seem probable that the prairies of the United States were due to the annual burning of the grass by the Indians, in order to enlarge the pasture of the buffalo? [Shaler, Nature and Man in America, p. 184.]

7. "The world could dispense with the precious metals more easily than it could with coal and iron"; is this true? [Patton, Natural Resources of the United States, 40.]

8. Compare the known coal supply of the United States with that of other industrial nations; what conclusions may be drawn with respect to the question of industrial supremacy? [Monthly Summary of Commerce and Finance, Treasury Department, September, 1902.]

9. If the Pacific coast were well provided with harbors and navigable rivers, is it likely that it would become commercially and industrially as important as the Atlantic seaboard?

10. As man progresses, does he become more or less dependent upon his physical environment?

SELECTED REFERENCES. CHAPTER I

*Channing: Students' History of the United States, Intro.
*Farrand: Basis of American History, chaps. 1–4.
*—— Mineral Resources of the United States.
**Shaler: The United States, I, chaps. 1–3, 7–9.
**Shaler: Nature and Man in America.
**Whitney: The United States; also in Encyclopædia Britannica, ninth edition.

Gannett: The Building of a Nation.
Patton: Natural Resources of the United States.
Reclus: The Earth and its Inhabitants, vol. III, The United States.
Russell, I. C.: North America, chaps. 1–6.
Shaler, in Winsor's America, IV, i–xxx.
Tarr: Economic Geology of the United States, part 1, chap. 3.

NOTE. — The double asterisk denotes the best references on the subject; the single asterisk good references; books without asterisks are good, but for one reason or another are not so useful for the subject of the chapter.

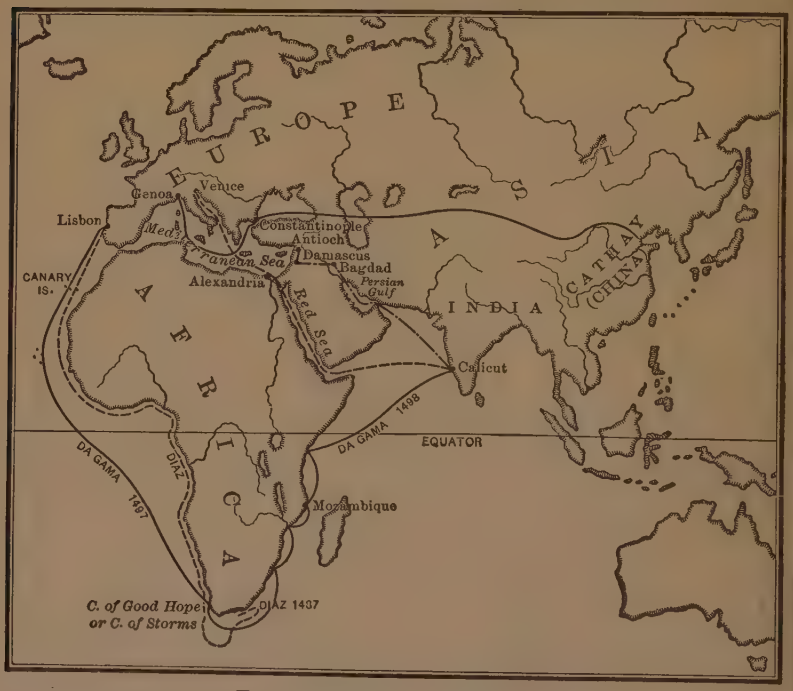
CHAPTER II

EXPLORATION AND COLONIZATION

16. The Renaissance. — The fifteenth century marks the height of the Renaissance, the awakening of men's minds from the slumber of the Middle Ages. Compact monarchies were growing up on the ruins of feudalism, and were gaining strength from new alliances with industrial towns. Manufactures became increasingly important; navigation was stimulated by the discovery of the mariner's compass. The invention of gunpowder was the final blow to the military power of the feudal lords, while the invention of printing spread the new learning among the common people. Peaceful activities became increasingly prevalent, whilst the ascetic ideal of the Middle Ages was shattered, thus opening the way for commercial expansion by raising the general standard of living.

17. Geographical discoveries. — A new spirit of maritime enterprise was awakened, and with phenomenal suddenness the barriers of the unknown seas were broken down almost simultaneously by the Spanish, Portuguese, Dutch, and English. For centuries a profitable trade between temperate Europe and the tropical Orient had been carried on by way of the Persian Gulf and the river Euphrates, the Black Sea, or the Suez routes. Each of these ways was, however, successively closed to Europe by the conquests of the Ottoman Turks, and it became necessary either to forego the trade or to discover a new route to India. Then it was that the westward movement of the European nations began. The Portuguese were the first to push their daring voyages ever further southward, until, in 1486, Bartholomew Diaz rounded the Cape of Good Hope; he was followed, eleven years later, by Vasco da Gama,

who reached Calicut in India in 1498, after traversing the unknown Indian Ocean. Meanwhile, Columbus, seeking a shorter route to India across the Atlantic, made his great discovery of a new world in 1492. In 1519, Magellan, seeking



TRADE ROUTES TO THE EAST

The closing of these routes through the conquests of the Turks deprived Europe of a very profitable trade. In exchange for woolen cloth, lead, wine, and glassware, Europeans had brought back from the East spices, pepper, cotton cloth, silks, ivory, precious stones, and other valuable articles. The importance of the voyages of Diaz and Da Gama in re-opening the way to India is clearly shown.

a western route to the Molucca Islands, sailed through the straits bearing his name, as far as the Philippines, where he was killed; but his vessel, the *Victoria*, continued the voyage and reached Spain again in 1522, thus being the first one to circumnavigate the world. In 1577, Drake repeated the exploit.

These voyages caused a shifting of maritime power and paved the way for great commercial undertakings. "The effect of these discoveries," says Warner, "was to move commerce onwards from the 'thalassic' stage, the stage when it goes mainly over inland seas, to the 'oceanic' stage, when it extends over the oceans, and so all around the world. The highway of commerce had been the Mediterranean, and the Mediterranean ports, Venice, Genoa, Barcelona, Marseilles, the great trading centers. But when the Atlantic became the highway, the countries that looked out upon it, Spain, Portugal, France, Holland, and England, were given new opportunities." The new world now became the scene of daring exploring and colonizing expeditions by each of these nations in turn, each trying to secure and hold the prize of new territory and new wealth.

18. Spanish explorations. — After Portugal, which by reason of its position was the most adventurous maritime nation of Europe, Spain was the first in the field, and at the beginning seemed destined to commercial leadership. Her fortunate chance in being the first to discover the new world gave her a long pre-eminence. From the time of Columbus's discovery, Spanish exploration and conquest were extremely rapid, and by the middle of the sixteenth century she was in possession of the West Indies, of Central America, and of a large part of South America. Various causes combined to hold the Spanish in the Caribbean Sea and the Gulf of Mexico, such as the directness of the route thither from Spain, and the presence of gold in Peru and Mexico. Fortunately, perhaps, for the United States the settlements in Florida and Louisiana were never developed, the principal Spanish settlements being those in Cuba, Porto Rico, Jamaica, and on the continent of Central and South America.

The Spaniard was essentially an adventurer and conqueror rather than a colonizer and laborer. Throughout his period of supremacy in America he devoted himself almost exclusively to the mining of silver. In common with the other

nations of Europe at that time, Spain regarded her colonies simply as sources of wealth to the parent state, and sought to monopolize their products by the most jealous colonial policy.

19. Decline of Spain's power. — While at first the importation of the precious metals from America into Spain had a stimulating effect upon industry and commerce, in the long run it destroyed the industrial spirit of the people. The gold and silver were drained off by religious wars, or went to other countries to pay for expensive imports. Toward the end of the sixteenth century, Spain's commercial and maritime power began to decline rapidly, and by the middle of the seventeenth century (1648) her colonial and foreign commerce had been almost completely destroyed. Although she retained most of her possessions in America, and in fact increased them until, in 1783, she held sway over two thirds of the present territory of the United States, her hold upon them was always slight. By purchase, conquest, and treaty one by one of Spain's possessions in North America has slipped from her nerveless grasp, and has come ultimately into the possession of the United States — Louisiana in 1803, the Floridas in 1819, Texas in 1845, New Mexico, Arizona, and California in 1848, and Porto Rico in 1898. To-day Spain has not a single colony on either of the American continents.

20. The Dutch settlements. — The sixteenth century was the great age of the two Latin peoples, the Spaniards and the Portuguese; the seventeenth century may be said to belong commercially to the Dutch. Through the powerful Dutch East India Company they had gained control of the trade of the Orient. With the decline of the Spanish maritime power they, in common with the French and English, turned their energies to the New World. Even before this they had engaged in a more or less illicit trade with the West Indies, which was greatly extended by the formation of the West India Company in 1621, to which were given exclusive privileges, for twenty-four years, to trade in all lands bordering on the

Atlantic. In 1609, Henry Hudson, an Englishman in the employ of the East India Company, while searching for a shorter passage to India, sailed up the river which now bears his name. Trading posts were soon erected at Amsterdam and Orange (now New York and Albany), and a profitable fur trade commenced with the Indians. Beginning with 1623, colonies were planted, which were encouraged at first by the establishment of patroonships, or large semi-feudal estates. Later, trade was thrown open to all comers, and land was granted in small quantities upon payment of an annual quit rent. As the colonies grew, they drew to them English and French as well as Dutch settlers.

Not for long, however, did the Dutch remain in undisturbed possession of the Hudson. To the south of them, colonies of Swedes appeared on the Delaware, and to the northeast the English were rapidly crowding into New England. The Dutch were able to conquer the Swedes, in 1655, but were themselves expelled in 1664 by the English. During the eighteenth century, Holland's commercial supremacy gradually declined, and her pre-eminence passed into the hands of the French and English, her greatest rivals. Of their colonial possessions in the New World the Dutch retain to-day only Guiana in South America.

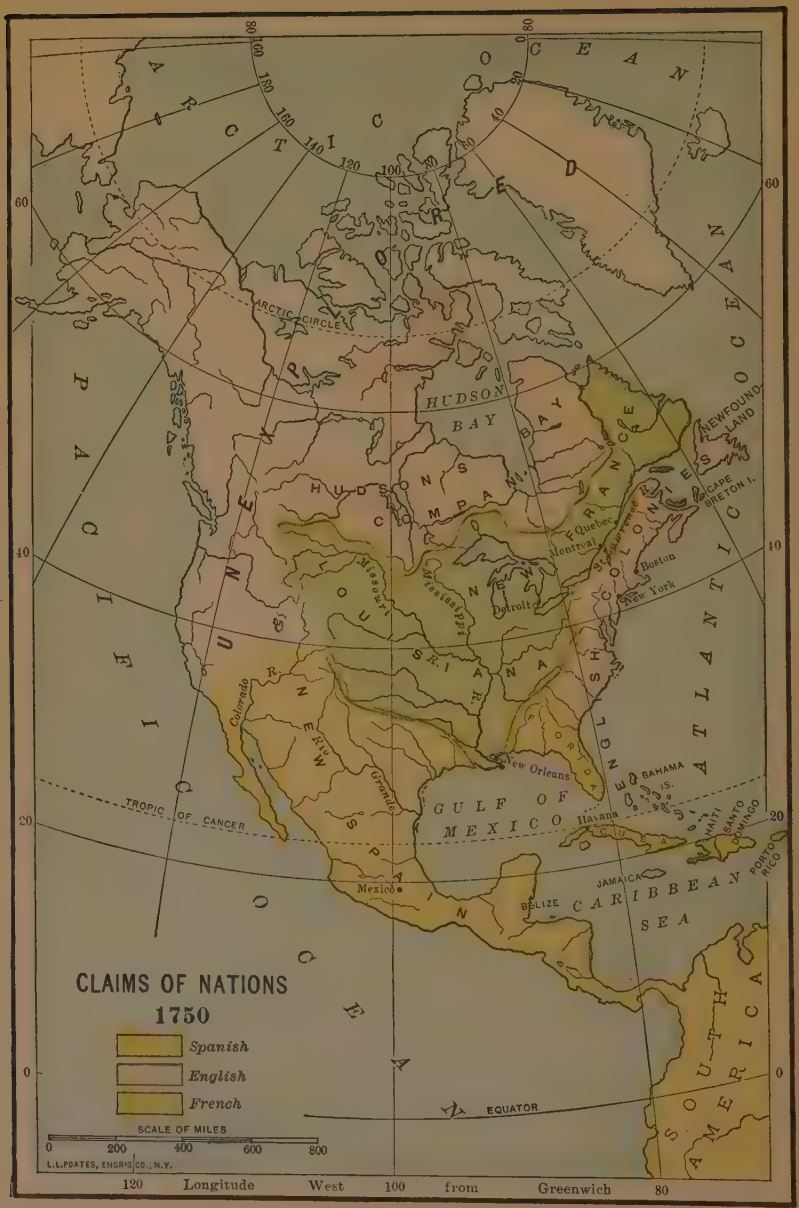
21. French colonization. — Frenchmen had frequented the fishing banks off Newfoundland as early as 1504, but they did not make any permanent settlement in North America before the reign of Henry IV (1594–1610). By 1608, however, Port Royal was held, Quebec founded, and the colony of New France established. After the death of Henry IV, little more in the way of colonization was attempted for a century, during which the prosperity of France at home was checked, and she was plunged into a series of expensive wars. At the beginning of the eighteenth century, French commerce began to expand again, and upon the decline of Holland's supremacy, she prepared to dispute the position of leader with England. This contest for control was fought out largely in America, and

its outcome had an important bearing on the future of the American colonies.

In 1718, New Orleans was founded. A little later the Mississippi Bubble was launched in France; while this was unsuccessful, it had the effect of directing attention to colonial enterprises, and led to a more liberal colonial policy. In time, other colonies were established higher up the Mississippi River, while the French in Canada pushed their settlements toward the headwaters. Attempts made to connect these distant posts brought them into collision with the English, who had meanwhile pushed out westward into the rich fur country along the Ohio River. The conflict thus brought about rapidly developed, in 1756, into the Seven Years' War, which was finally terminated, in 1763, by the Peace of Paris. By this treaty, France ceded to Great Britain all her possessions in North America east of the Mississippi. Spain, on her part, ceded to Great Britain her colony of Florida in exchange for Havana, which the English had occupied during the war. To recompense Spain for this loss, France ceded to her all of the French possessions in America west of the Mississippi. This treaty marked the permanent withdrawal of France from North America, except for the temporary possession of the Louisiana territory, 1800–1803.

The effect of this treaty upon the settlers in what is now the United States was very important. Relieved of all danger from an harassing enemy, they devoted themselves to the development of their material resources with new energy. At the same time the administration by the English authorities for the government of their enlarged dominions began to appear, both politically and economically, exceedingly burdensome. The discussion of this subject leads to a consideration of English colonization.

22. English exploration. — Although finally outstripping all her rivals, England was the last in the field in exploring and colonizing the new world. Internal affairs had absorbed the energies of rulers and people until the period of wonderful


ARCTIC OCEAN
PACIFIC OCEAN
ATLANTIC OCEAN
ARCTIC CIRCLE
HUDSON BAY
HUDSONS BAY COMPANY
UNEXPLORED
NEW FRANCE
NEWFOUNDLAND
CAPE BRETON I.
Quebec
Montreal
St. Lawrence R.
Boston
New York
Detroit
Mississippi R.
Missouri R.
LOUISIANA
NEW ENGLAND COLONIES
Colorado R.
NEW SPAIN
Rio Grande
New Orleans
FLORIDA
BAHAMA IS.
GULF OF MEXICO
Havana
CUBA
HAITI
SANTO DOMINGO
PORTO RICO
JAMAICA
BELIZE
CARIBBEAN SEA
Mexico
TROPIC OF CANCER
EQUATOR
SOUTH AMERICA
CLAIMS OF NATIONS
1750
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French
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commercial expansion under Elizabeth. The latter part of the sixteenth century was a time of great economic disturbance in England, during which the exploits of the English adventurers and explorers aroused general interest. Such men as Hawkins, Drake, Grenville, Oxenham, Raleigh, and others, were, however, simply the vanguard of the real colonizing movement which came later. At the end of Elizabeth's reign England had acquired nothing on the mainland of America. It was not, indeed, until the dream of finding gold had been dispelled, that permanent settlements became possible. When to the willingness to engage in the work of cultivating the soil there was added the further motive of establishing a home where a man could worship God in his own fashion, then real progress began.

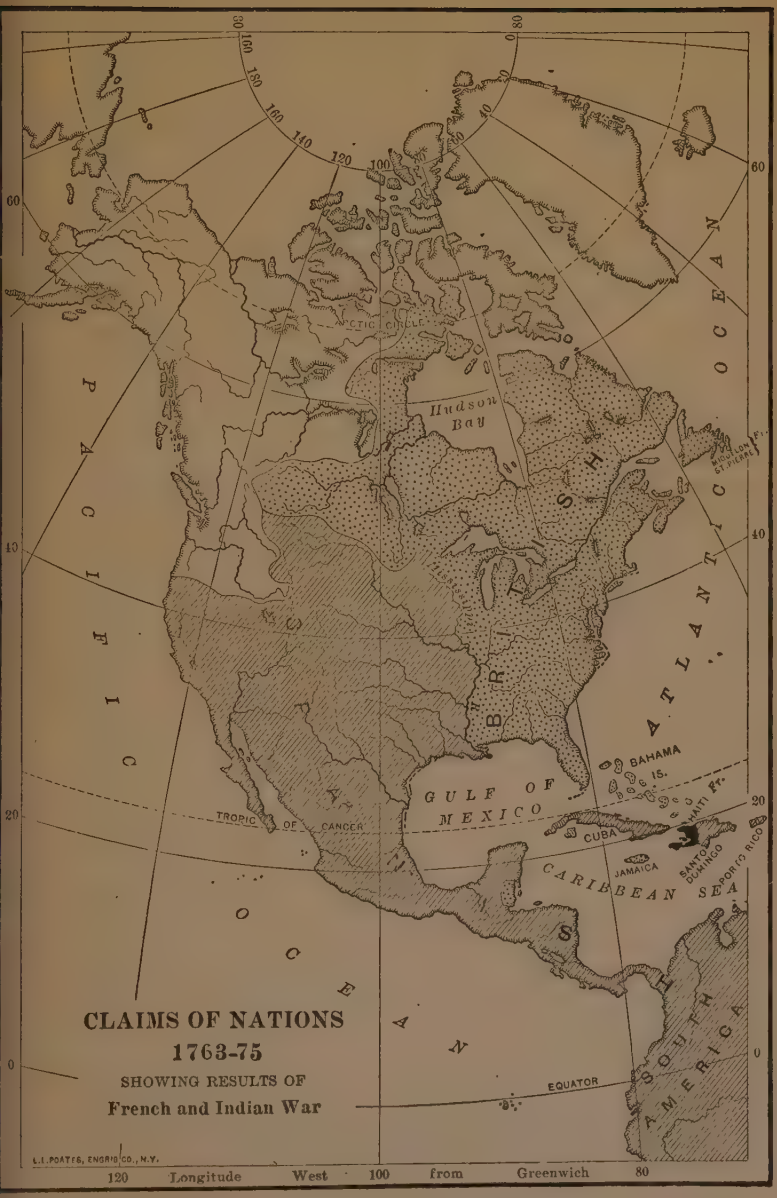
23. The English colonies. — In 1607, at Jamestown, the first settlement was established, the germ of the United States of to-day. The colonists, who were ill designed for such a task, were held together only by the firmness of their leader, John Smith, who insisted that "nothing was to be expected but by labour." They experienced severe hardships and twice nearly abandoned the colony, but with the rapid increase in the consumption of and demand for tobacco all over Europe, they soon fell upon more prosperous days.

The year 1620 witnessed the settlement of Plymouth, in New England, by the Pilgrims. In spite of suffering at first, they soon established themselves firmly in their new home. They were a brave, industrious, religious, and liberty-loving set of men, who had left England rather than conform to the established church, and were both willing and able to endure the hardships of a pioneer life. Attracted by the slender success of the Plymouth experiment, fishing stations were established on the Maine coast, and then more permanent colonies in rapid succession: Massachusetts Bay, Maryland, Connecticut, Rhode Island, New York, New Jersey, the Carolinas, and Pennsylvania. Except during the period of the "great emigration" (1630–40) the population of the colonies

grew but slowly; by 1700 the total number of inhabitants was only 250,000. Economic progress, too, was slow during the seventeenth century, owing to the restrictive commercial policy of England.

24. The mastery of the English. — During the eighteenth century the English colonies in America developed quite rapidly. Georgia was the only new colony added to the list already given, but the population in the older colonies continued to increase; by 1760, the English-American colonists numbered approximately one million six hundred thousand persons, white and black, and occupied a narrow strip of coast almost continuously from Georgia to Nova Scotia. The Ohio valley had already been successfully disputed with the French, and to the north England had secured possession of the Hudson Bay Territory, Newfoundland, and Nova Scotia. Thus the English race, the last in the field, had obtained possession of practically all the settled portion of North America. Their success must be attributed mainly to the character of the people who had essayed this difficult task of conquering and settling a new world. Hardly less important, however, in stimulating and developing this character were the institutions of the people, growing, as they were, more and more free and democratic.

Of the four important European nations which settled in the territory now included in the United States, the English nation was the only one which succeeded in maintaining a permanent foothold. The Spanish, the first on the scene and the last to retire therefrom, owed their failure to the despotic character of their government, their ruinous commercial policy, and their lack of permanent settlements. Holland lost her possessions on the Hudson River chiefly owing to her failure to encourage the growth of colonies of small land owners, and also to the strategic importance to England of New Netherlands. Finally, the policy of France, by which the population was placed arbitrarily in scattered military outposts instead of being permitted to effect compact settlements of home-


CLAIMS OF NATIONS
1763-75
SHOWING RESULTS OF
French and Indian War
Hudson Bay
ARCTIC OCEAN
PACIFIC OCEAN
ATLANTIC OCEAN
BRITISH
SPANISH
FRENCH
GULF OF MEXICO
CARIBBEAN SEA
BAHAMA IS.
CUBA
HAITI
JAMAICA
SANTO DOMINGO
PORTO RICO
MIQUELON
ST. PIERRE
TROPIC OF CANCER
EQUATOR
SOUTH AMERICA
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seekers, made her yield to the English colonists when the final conflict came. On the other hand, the home-making instinct of the English had meantime built up permanent settlements along the whole Atlantic coast, while the natural mountain barrier to the east had held them compacted until they were strong enough to advance beyond it. When that time arrived, their expansion was irresistible. For the first one hundred and fifty years of their existence, too, the relations between the colonies and the mother country were close and, on the whole, most friendly. The trade of the colonies with England kept growing steadily throughout this period from about $3,250,000 in 1698 to $10,000,000 in 1751, and $27,250,000 in 1771; the total trade of the colonies for 1771 was only about $30,000,000, so it is evident that most of it was with England.

25. The United States. — The expulsion of the Dutch in the seventeenth and of the French in the eighteenth century had left England mistress of practically the whole of the eastern half of North America. By the war of the Revolution, the new nation of the United States of America fell heir to the territory south of the St. Lawrence and east of the Mississippi (with the exception of the Spanish possession of Florida), comprising 827,844 square miles. Since that time the area of the United States has been increased by the additions shown in the table on the following page.

26. Motives for exploration and colonization: Political. — In view of the general movement toward exploration and settlement, not merely of America, but of all the newly discovered territories, it is worth while to ask ourselves what the motives were which produced such widespread, almost concerted, action on the part of the most important nations. These were different in the case of different nations, some emphasizing motives which were subordinate in the case of others, but in the main they were economic — greed of gold, desire for territory, to secure an outlet for surplus population or a market for goods. Partly, too, they were political and

religious, and at these we may briefly glance before proceeding to enumerate the others.

ADDITIONS TO THE TERRITORY OF THE UNITED STATES FROM 1800 TO 1900

TERRITORIAL DIVISION	Year	Area added	Purchase price
		Square miles	*Dollars*
Louisiana purchase	1803	875,025	15,000,000
Florida	1819	70,107	*a* 6,489,768
Texas	1845	389,795	.....
Oregon Territory	1846	288,689	.....
Mexican cession	1848	523,802	*b*18,250,000
Purchase from Texas	1850	(*c*)	10,000,000
Gadsden purchase	1853	36,211	10,000,000
Alaska	1867	599,446	7,200,000
Hawaiian Islands	1897	6,740	.....
Porto Rico	1898	3,600	.....
Guam	1898	175	.....
Philippine Islands	1899	143,000	20,000,000
Samoan Islands	1899	73	.....
Additional Philippines	1901	68	100,000
Total	.....	2,936,731	87,039,768

a Includes interest payment.

b Of which $3,250,000 was in payment of claims of American citizens against Mexico.

c Area purchased from Texas amounting to 123,784 square miles is not included in the column of area added, because it became a part of the area of the United States with the admission of Texas.

Political aims were present in the case of the English in all schemes for colonizing North America. The settlement of Virginia was regarded as a check to the northward spread of Spanish settlements, and was considered a proper defiance of the Spanish claim to the whole continent under the famous bull of Pope Alexander VI, which divided the new world between Spain and Portugal. Rivalry with Spain was a note that ran

through all the work of exploration and settlement, not merely of England, but of Holland and France also. Political disaffection at home, as during the period of the "great migration" from England, also drove many settlers across the Atlantic in search of liberty and of freedom from oppressive laws.

27. Religious motives. — Closely connected with these were the religious motives. The antagonism of protestant England to Catholic Spain was largely religious. Captain John Smith declared the first object of the Virginia Plantation was "to preach and baptize into the Christian Religion, and by the propagation of the Gospell, to recover out of the arms of the Devill, a number of poore and miserable soules wrapt up unto death in almost invincible ignorance." The religious impulse was also strongly at work in New England. The Pilgrim Fathers sought to establish a colony in which they could worship after their own fashion, and in which church membership was made the condition of citizenship. Other English settlements were made to permit the free exercise of different religious convictions: Maryland was a Roman Catholic settlement; Rhode Island was founded by Roger Williams to secure liberty of conscience; the Quaker colony of Pennsylvania was essentially religious.

Spanish and French efforts at colonization were also conceived largely in a missionary spirit. The missionaries of these nations preceded even the traders and settlers, and opened the way for the spread of colonies, as in the west and southwest of North America.

28. Economic motives. — The main impulse in the work of colonization, however, was economic. The new world offered an opportunity for large gains and for the profitable investment of capital. The desire for the precious metals was probably the most universal and powerful motive to the exploration and settlement of America. The first quest of the earlier expeditions was always gold, and the search for this elusive commodity led to the exploration of most of the two continents.

Spain won the chief prize in this respect, and her success both dazzled other nations and stimulated them to similar effort. The Spanish colonies were founded with the purpose of exploiting the mines of gold and silver. While other economic and commercial motives were of greater importance in the English settlements, yet in the earlier expeditions this was predominant with them also.

The most potent reason for the early explorations, together with the probable presence of gold, was the search for a shorter route to India. It was this that led Columbus to the west across the Atlantic, and that motive still held in the Spanish mind until Magellan sailed through the straits which bear his name. It was this feat of Magellan's and the earlier rounding of the Cape of Good Hope by the Portuguese that directed English energies into this channel for so many years. According to the then prevailing principles of international law the title to the ocean routes to India belonged to Spain and Portugal. Hence the English sent expedition after expedition to the northeast of North America in search of this elusive passage. Such a route, if discovered, would not only be English; it would have the additional advantage, by passing through a cold climate, of opening up a market for England's great staple, cloth. The pursuit of this chimera of a Northwest Passage continued for a hundred years — Frobisher (1576) sailed in search of it; Davis (1586), Hudson (1607 and 1610), Baffin (1615), Fox, James (1631), and others, went on the same fruitless mission.

There was also a quest for new markets for the growing manufactures. Hakluyt tells us this as early as 1553: "At what time our merchants perceived the commodities and goods of England to be in small request with the countries and people about us and near to us, and that those merchandises which strangers did earnestly desire were now neglected and the price thereof abated, though by us carried to their own ports, and all foreign merchandises of great account, certain grave citizens of London began to think how this mischief

ARCTIC OCEAN
PACIFIC OCEAN
ATLANTIC OCEAN
Hudson Bay
BRITISH POSSESSIONS
Columbia
Quebec
Boston
New York
Mississippi
Colorado
New Orleans
GULF OF MEXICO
BAHAMA IS.
Havana
HAITI
PORTO RICO
SANTO DOMINGO
JAMAICA
CARIBBEAN SEA
Mexico
BELIZE
Panama
SOUTH AMERICA
TROPIC OF CANCER
EQUATOR
CLAIMS OF NATIONS
1783
SCALE OF MILES
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L. L. POATES ENGRG CO., N.Y.
120 Longitude West 100 from Greenwich 80

might be remedied. Neither was a remedy wanting — for as the wealth of the Spaniards and Portuguese, by the discovery and search of new trades and countries, was marvellously increased; supposing the same to be a means for them to obtain the like, they thereupon resolved upon a new and strange navigation."

But not only was a market desired for English exports; a source of supply of the raw materials and other articles which the English people were at that time compelled to purchase from foreign nations was sought. England imported her naval stores from Russia and Poland; copper from Sweden; wines, salt, and canvas from France; silks and velvets from Italy; spices from the Indies. All these, it was thought, could be obtained from the new world, and all the early reports give glowing accounts of the natural productiveness of the country. At the same time, this vast interchange of goods between England and the new world would stimulate the growth of the English merchant marine, and train up a sturdy set of English seamen.

The effect of the fisheries in directing whole fleets of English, French, and Dutch fishing vessels to the Newfoundland Banks and down the New England coast was felt before the true era of colonization began. Communication between Europe and North America had been constant for a century before the settlement of Jamestown, and a thorough exploration of the coast had been made. After the settlement of the continent began the fur trade was equally important in stimulating exploration of the interior, and in providing the material for a lucrative commerce.

A final reason which found expression in contemporary writings was that the new settlements would furnish an outlet for the surplus population of England. Throughout the sixteenth and seventeenth centuries there were many complaints of the redundancy of the population. The cessation of the Elizabethan wars left many adventurers without an occupation, and the substitution of sheep pastures for farms had

thrown multitudes out of work. All these, it was hoped, would find employment in the new colonies.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER II

1. "Name at least four important inventions or discoveries which closed the Middle Ages, and show how each of them affected Columbus's undertaking." — Channing. [Morris, Civilization, II, 11, 87; Webster, Hist. of Commerce, 108.]

2. Trace the migration of commercial supremacy among nations. [Morris, Civilization, II, chap. 16; Brooks Adams, American Economic Supremacy.]

3. When did the Pacific Ocean first become important in the commerce of the world? How has it compared with the Atlantic?

4. Why was it considered necessary in the fifteenth century to find a new route to India? [Semple, Amer. Hist. and Geographic Conditions, 1–3; Fiske, Discovery of America, I, chap. 4.]

5. Are there any economic reasons why the early discovery of America by the Northmen should have been without effect? [Semple, *ut supra*, 5–7.]

6. What useful services, if any, did the English buccaneers perform? [Lucas, Historical Geography, II, 55; Encyclopædia Britannica, art. "Buccaneers."]

7. "Why has the English race supplanted the Spanish and French races in North America?" [Wilson, Hist. of Amer. People, II, chap. 2; Fiske, New France and New England, chaps. 1–4; Semple, Amer. Hist. and Geog. Cond., 25–31; Bancroft, Hist. of U. S., IV, 128–130.]

8. Why did the English expel the Dutch from New Netherlands? [Wilson, Hist. of Amer. People, I, 165; Winsor, America, III, 421–424.]

9. Are there any relics to-day of the Dutch patroonates?

10. Do we owe any distinctive elements of our national character or progress to the Dutch settlers? [Roberts, New York, chaps. 3, 4, 5; Fiske, Dutch and Quaker Colonies in America, II, chap. 17.]

11. Show the effect of the Seven Years' War on the history of France, England, and America. [Hinsdale, Old Northwest, chap. 5; Winsor, America, V, chap. 8; Lecky, Hist. of England, III, chap. 12.]

12. What was John Law's "Mississippi Bubble"? [Johnson, Great Events by Famous Historians, XIII, 1–15; Nicholson, Money and Monetary Problems, 165–207; Encyclopædias.]

13. What are the important colonizing nations to-day? Why did not Germany have a share in colonizing North America in the seventeenth and eighteenth centuries?

14. What is the policy of the United States in dealing with her colonial

possessions at present? [Willoughby, Territories and Dependencies of the U. S.; Ireland, The Far Eastern Tropics.]

15. Read Kingsley's "Westward Ho!" and tell what you think of it.

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PART I

COLONIAL DEVELOPMENT

CHAPTER III

ENGLISH COLONIAL THEORY AND POLICY

29. Economic conditions in Europe during the sixteenth and seventeenth centuries. — The discovery of the new world and of a shorter route to India had exercised a revolutionary effect upon the countries of Europe. The flood of silver which followed the opening of the South American mines had assisted in breaking up the feudal system of payment in kind, and in substituting a money economy. Throughout the sixteenth and seventeenth centuries trade and communication were expanding. Powerful states were forming, with paid armies, and to secure the needed revenue to pay them it became necessary to develop taxation. As manufactures in the towns yielded greater revenues than agriculture, they were selected for especial encouragement by the state. Further, it was evident that only as the state was powerful could it help its citizens in their competition with citizens of other countries, or itself carry on successful commercial struggles with rival nations. Accordingly a definite economic policy was formulated, of which the government was the head. The aim was so to regulate industry that the state should be made strong and powerful. The set of measures by which this national power was to be developed is called the mercantile system, and it was under the influence of this system that not only England, but all European countries, regulated their trade and commerce during this period.

30. The Mercantile system. — The aims of the mercantile system in England have been classified by Warner under four

main heads: (1) the policy of encouraging native shipping by navigation acts, in order that the realm might have plenty of ships and sailors from which an efficient navy could be formed; (2) the policy of protecting and helping native grain growers, in order that England should be independent of food from outside, and should always be able to feed the population from her own land; (3) the policy of protecting home industries, and of planting new ones to give employment to native artisans; and finally, (4) the policy of amassing and keeping in the country a large amount of money.

31. Protection to shipping. — As early as the reign of Richard II (1377–1399) it was enacted that "none of the King's liege people should ship any merchandise out of or into the realm, except in the ships of the king's ligeance, on pain of forfeiture." Under Henry VII (1485–1509) and Elizabeth (1558–1603) similar laws were passed. The best known legislation for this purpose was the famous navigation acts, which were passed in 1651 under Cromwell, and made more severe in 1660. These prohibited the carrying of goods to and from England in any but British built and manned vessels.

But, to develop the English merchant marine, it was necessary not merely to secure a monopoly of the carrying-trade, but also to train up sailors, encourage ship-building, and provide an adequate supply of naval materials. We find, accordingly, legislation directed to each of these ends. Since fishermen made good sailors every encouragement was given to their industry. As the simplest way was to increase the demand for fish, an act was passed in 1548, "in order that the Fishers may be set on work," directing that fish must be eaten two days a week throughout the year as well as during Lent. Later, bounties were given. Ship-building was encouraged rather indirectly by clearing the sea of pirates and making the ocean a safer place for travel. Finally, strong efforts were made to secure the production of naval stores in the colonies, especially flax, hemp, tar, and pitch, though never very successfully.

32. Protection to agriculture and industry. — The policy of making England strong by building up a powerful navy found its application to agriculture and manufacturing in an effort to make the country economically self-sufficient. In respect to agriculture, it was desired to raise enough food in England to support the population, and not less to develop a sturdy yeomanry who should serve as soldiers in time of war. Accordingly, the enclosure of arable land was restricted, and the import of grain forbidden or limited; the exportation of raw materials was also prohibited. To encourage home manufacturing industries and provide employment for the people the importation of various foreign wares was forbidden, as woolens, silks, iron, leather goods, hats, and many smaller articles. The underlying principle was the same in all these provisions — to make England and the English people strong at the expense of other nations.

33. Money and the balance of trade. — But the mercantilist doctrines found their fullest expression in the legislation with regard to money; this was the key-note of the whole policy. The doctrine was a simple one: money is the most general and universally desired form of wealth; the nation, like the individual, is richest which has the largest store of gold and silver; riches bring power, and it is therefore necessary for a successful nation to secure a bountiful supply of money. Thus, Spain, which controlled the silver mines of America, was one of the most powerful nations of Europe. But since England possessed no mines, she could get money only in exchange for goods; in order to do this, she must export as many commodities as possible and import as few as possible, except raw materials, taking the difference in money. This difference was called the balance of trade, and was said to be favorable when an excess of exports over imports brought in money; unfavorable, when the reverse was the case. In order to maintain a favorable balance of trade the government must resort to many expedients — high duties on imports or their prohibition, bounties on the exports of home

productions, and restrictions upon the exportation of the precious metals.

34. English colonial policy. — The doctrines of the mercantile system, applied to the colonies, resulted in a policy by which their resources were used to make England powerful. To build up English shipping, agricultures, and manufactures, and to secure a favorable balance of trade, was the object of English legislation during the whole of the colonial period. In this policy the colonies were regarded as feeders merely, supplying the raw material for English manufactures and a market for the finished goods, while a large exchange of commodities between the colonies and the mother-country provided a profitable carrying-trade for English ships. Accordingly the manufacture in the colonies of such goods as could be made in and exported from England was forbidden. Such colonial products, moreover, as were desired at home, the colonies were forbidden to send anywhere except to England; while other goods, which would compete with English interests, were prohibited from being sent to England, although they could be exported to certain other countries. The first group, which was "enumerated" in the law, consisted of commodities not produced at all in England, as coffee, indigo, tobacco, beaver skins, dyes, etc., or of products whose home supply was insufficient, as naval stores, masts, tar, pitch, pig iron, pot and pearl ashes, etc. The second group, of "non-enumerated" products, consisted of such articles as grain, salt provisions, fish, and rum.

The general principle then was that the colonies should be used for the benefit of the mother-country, and is well expressed in Lord Sheffield's famous observation that "the only use and advantage of American colonies, or West-India Islands, is the monopoly of their consumption and the carriage of their produce." There was indeed a certain justification for this position as the colonies were, at least during the eighteenth century, a constant expense to England, and it seemed only fair, therefore, for the mother-country to use their resources for

her profit. The attitude of England in this regard was considered by Adam Smith "less illiberal" than that of other nations. No country allowed foreigners to engage in trade with its colonies; such was the policy of Spain, Holland, and France, as well as England.

35. Early commercial freedom of the colonies. — When the first settlements were made in America they were granted complete exemption from trade restrictions. The Virginia, Maryland, and Plymouth companies all received various concessions, as freedom from duties, use of their own revenues, etc., designed to encourage the colonization and development of the country. According to the first charter granted the Jamestown colony their trade was open to any foreigner upon payment of a small duty. In 1624, however, James I dissolved the company and thereafter tobacco was exported only to England. The growing trade with Holland was thus nipped in the bud, and the possible revenues from duties on imports into England were reserved for the crown. In general, there was practical freedom of trade on the part of the colonies up to the time of the Navigation Ordinance of 1651.

36. The Navigation Ordinance of 1651. — This famous act, enacted by Cromwell, was directed against the Dutch, who at this time were the carriers of the world's commerce. It was desired both to cripple Holland, and to build up English shipping by confining English trade to English vessels. The policy was successful, and England soon supplanted Holland as the foremost maritime power. The act provided that all products "of the growth, production, or manufacture of Asia, Africa, or America, or of any part thereof, . . . as well of the English plantations as others," could be imported into England or its territories only in English-built and English-manned vessels. The word "English" included also the colonists. By this act, therefore, a monopoly of the commerce with England and the colonies was given to British (*i.e.*, English and colonial) shipowners, for the purpose of building up British shipping.

37. Effect of the Navigation Act. In 1650 the chief interests of the colonies were agricultural; ship-building, fishing, and fur-trading being practically the only other industries. Cromwell's Navigation Act, which required the use of English or colonial ships in the carrying-trade, gave a distinct impetus to ship-building and shipping. Ship-building soon became the most important industry in New England. Indeed, colonial vessels soon began to be sold in England, and to displace English vessels in the carrying-trade; by 1775 one third of the ships engaged in British trade were colonial-built. The only complaints as to the effects of these provisions came from Virginia tobacco planters, and these soon died away.

38. Regulation of colonial commerce. — The act of 1660 added to the monopoly of navigation that of colonial commerce and markets. By this act, all the colonial commodities which could not be produced at home were reserved for the exclusive use of English manufacturers and merchants, while those not desired could be sent to other countries if they did not there compete with English products. In Chapter 18 of this act are enumerated those commodities which could be exported, on pain of forfeiture, only to England: "no sugars, tobacco, cotton-wool, indigo, ginger, fustick, or other dyeing woods, of the growth, produce, or manufacture of any English plantations in America, Asia, or Africa, shall be shipped . . . to any place whatsoever," except England. This list was later considerably expanded by the addition of various other commodities: naval stores, such as tar, pitch, turpentine, hemp, masts, yards (1706); rice (1706–1730); copper ore; bar and pig iron, pot and pearl ashes; beaver skins (1722); whale fins, hides; molasses (1733).

The non-enumerated commodities could originally be exported to any part of the world, except England. They consisted of grain of all kinds (except rice 1706–1730), sugar (after 1731), salt provisions, fish, and rum. In 1766 the exportation of these articles was confined to those nations of Europe lying to the south of Cape Finisterre; as these were

not manufacturing countries, England was less jealous of colonial trade with them.

To this regulation of exports there was added in 1663 a further restriction upon imports into the colonies. This law prohibited by very high duties the importation into the colonies of any commodities of the growth, production, or manufacture of Europe, unless laden and shipped in Great Britain, and in English-built and manned shipping. The only articles excepted were salt for the fisheries, wine from Madeira and the Azores, and all sorts of provisions from Scotland and Ireland.

39. Effects of the regulation of colonial commerce. — The purpose of the acts was clear: it was the desire of English merchants and manufacturers to keep America an agricultural country, which should furnish the raw material for England and interfere as little as possible in her trade with foreign countries. The interests of the colonies were made distinctly subservient to those of the mother-country. The actual effects of these restrictions upon the commerce of the colonies has, however, been greatly exaggerated. And, moreover, they should be judged according to the then accepted theory of the proper method of dealing with colonies.

Of the original group of enumerated commodities one only — tobacco — was a product of the American colonies, but this was of sufficient importance, constituting as it did nearly one half of all the colonial exports, to condemn or excuse the whole principle of restriction. After 1660 all tobacco must be shipped to England alone; from England much of it, to be sure, was re-exported to foreign countries, but, though a drawback of the duty was allowed, the additional freights and warehouse charges went into the pockets of English middlemen. On the other hand, the growing of tobacco was prohibited in England, and high duties imposed on Spanish tobacco, thus guaranteeing a monopoly of the English market to the Virginia tobacco grower.

While the grievance of the Virginia planters was not therefore so great as has usually been assumed, the enumeration of

tobacco undoubtedly had a deleterious effect upon its production and price.

The inclusion of rice in the list of enumerated commodities in 1706 imposed a real hardship on the Carolina rice-growers by depriving them of the Spanish and Portuguese markets; that this was regarded as an injury is proved by the relaxation of the law in 1730 so as to permit the direct exportation of rice to any country south of Cape Finisterre. The restriction of naval stores, (*i.e.*, tar, pitch, turpentine, hemp, masts, yards, and bowsprits) to the English market was probably more than offset by the granting of bounties for their production. By the time the exportation of beaver skins was regulated in 1722, the fur trade was already passing from the American colonies to the French in Canada, but for a time the restriction was keenly felt by certain sections of the colonies.

40. Prohibition of colonial exports to England. — We have thus far discussed the effect of the policy of requiring certain enumerated articles to be exported only to England; let us now inquire as to the effect of the opposite policy of forbidding other non-enumerated articles to enter English ports. Such were all those commodities which could be produced in England and whose importation would therefore expose the English farmer to an undesirable competition. The products of the northern colonies, which were situated in the same climatic zone as the mother-country, were chiefly affected by this act. These were wheat, oats, rye, peas, beans, barley, bread, bacon, beef, pork, fish, butter, cheese, whale oil, and salt fish. By the act of 1660 and subsequent measures, prohibitory customs duties were levied upon the importations of most of these articles into England, or they were absolutely forbidden. Since, however, they could be exported to any other part of the world (after 1766 to countries south of Cape Finisterre), it would seem that the colonies could not have been very adversely affected by this measure. Nor would they, had not a subsequent act forbidden colonial vessels to carry back imports except from England. This meant that a New England

vessel, after carrying a cargo of salt fish to the West Indies or of lumber to the Azores, would be obliged to return empty or make a roundabout trip and load in England for a return cargo on the voyage home. They were forced to go to a foreign market to sell, and then compelled to sail to England for their manufactures and other imports. The northern colonists were thus soon led either to evade the laws altogether or to develop manufactures themselves and lessen their dependence on England for such goods. As a matter of fact they did both.

41. Restrictions upon imports. — While the regulation of exports did not, perhaps, disastrously affect the colonies as a whole, at least before the middle of the eighteenth century, the restrictions upon imports had a more serious effect. Those laws which prohibited the importation of foreign goods directly into the colonies from the country of their production were designed to make England the great emporium where the products of all nations must first be brought and unloaded. The colonists were not forbidden to import foreign goods; only they must go to England for them. While English merchants and factors were thus afforded an opportunity of pocketing a middleman's profit, prices of such goods in the colonies seem to have been but little if any higher as a consequence, since England was the natural *entrepôt* for such trade. Utterly indefensible, however, was the restriction, by the imposition of prohibitive duties in 1733, upon the importation into the colonies of sugar, molasses, and rum from foreign plantations. Considerable quantities of molasses were at this time annually imported from the French West Indies into New England, where it was distilled into rum and used as the basis of a profitable three-cornered trade with Africa. As the object of this act was to hamper the development of the French West Indies, the American colonies were sacrificed, not to the supposed best interests of English manufacturers, but to the greed of British West India sugar planters. Even more disliked in America was the strict enforcement of the law which accompanied the lowering of these duties in 1764. In fact a recent writer on

the subject attributes to the irritation over this part of the English commercial policy much of the feeling against Great Britain which has in the past been assigned to the Stamp Act.

42. Restrictions upon intercolonial trade. — There was still one other branch of commerce which had remained open to the colonies, and that was the trade with one another. By the act of 1673, however, this too was monopolized by the English merchants. A considerable trade had already sprung up between the colonies; New England vessels were found in most of the southern ports, and carried on a profitable commerce with them and especially with the West Indies. The products of the northern colonies were in great demand there, and the fish of New England, the flour and bread of the middle colonies, and the cattle, horses, and especially lumber of both sections, found a ready market in exchange for the sugar, molasses, cotton, logwood, indigo, and other tropical products of the West India islands. With these goods the northern colonies were able to pay for the English manufactured commodities which they imported; many New England ships sailed directly from the islands to Great Britain. Necessary as such a trade was to the prosperity of the northern colonies, it introduced a competition not relished by English traders, and at their request heavy duties were imposed upon the importations from one colony into another. Intercolonial trade was seriously affected by this act.

Even more profitable to the continental colonies was the traffic with the West India islands belonging to France, Spain, Denmark, and Holland, but direct trade with these foreign islands had been forbidden under the Navigation Act of 1663. The inevitable result of such ill-advised restriction of a natural and profitable trade was the wholesale evasion of the law. The intercourse was not prevented; it was simply made somewhat hazardous and illegal. This constant interference with commerce involved real hardship to the colonies and secured no corresponding advantage to the mother-country. Between

1651 and 1761 upwards of twenty-five acts of Parliament were passed regulating colonial trade.

43. Restrictions upon manufacturing. — During the sixteenth and seventeenth centuries manufactures were developing in England, and as the colonies became more important the English manufacturers demanded not only protection at home against colonial manufactures, but also the monopoly of the colonial market in which to dispose of their own products. Indeed, the prevention of manufactures in the colonies was an integral part of the mercantile system and simply supplemented the restrictions of the navigation acts; throughout this whole period England watched most jealously every sign of the development of manufactures in the colonies. As early as 1699 the exportation of wool, yarn, and woolen cloth from the colonies "to any other of the said plantations, or to any other place whatsoever," was prohibited. Household manufacturing of woolen yarn and cloth was not forbidden the colonial housewives, but the possible exportation of these commodities in competition with the growing woolen industry of England was thus early prevented. Manufactures for domestic purposes continued to develop in the northern colonies, however, and in 1732 the Commission of Inquiry was ordered by the House of Commons to investigate manufactures in the colonies. In the same year the exportation of hats was forbidden. Finally, in 1750, the erection of any slitting or rolling mills, or plate, forge, or steel furnaces, was absolutely forbidden. This last act was a severe blow to the growing iron industry of the colonies, and coming, as it did, just as the colonies were developing industrially, was a cause of serious irritation against the commercial policy of England. The legislation prohibiting manufactures was the more irritating because the restrictive commercial policy of England, by shutting the English markets to the agricultural products of the northern colonies and by forbidding their exchange in the West Indies, had practically forced the colonies to supply themselves with their own manufactured commodities. In the

southern colonies, whose staple products were not thus prevented from finding a profitable market, manufactures never gained a foothold.

44. Encouragement to industry. — On the other hand, it must be remembered that along with the policy of restriction there went also the policy of encouragement. While manufactures were stifled, the production of raw materials was favored by an extensive system of bounties, from 1705 on, especially on indigo, hemp, flax, timber, naval stores (tar, pitch, turpentine, and rosin), and pipe, hogshead, and barrel staves. One estimate makes the amount paid in bounties to the colonies more than a million and a half pounds. So, too, the production and exportation of pig and bar iron was encouraged by admitting them into England free of duty, while Swedish iron was held off by a heavy tariff. As wood was used for smelting at that time, and not coal, the production of iron was more closely allied to agriculture than to manufactures. Other articles, as tobacco, raw silk, pot and pearl ashes, lumber, iron, whale-fins and train oil, etc., were at different times admitted to England either free of duty, or at rates much lower than similar articles from other countries.

In general, therefore, the commercial policy of England was designed to keep the colonies in the state of agricultural communities, which should supply raw materials to English manufacturers and furnish a market for their finished products.

45. Evasion of restrictions. — The situation in the colonies and the silent acquiescence of the colonists in this policy cannot be fully understood unless we realize to how great an extent the provisions were evaded. In the first place, the laws were allowed to become dead letters or were not strictly enforced by English officials. Except for the short period from 1696 to 1721, when there was comparatively strict execution of the laws, the policy of "salutary neglect" of the colonies was adhered to by Parliament. Indeed, there was often connivance

of the customs officers in the evasion of the laws. In the South there was some illicit trade with the West Indies, while considerable went to other countries than England. Most of the smuggling occurred in New England and the middle colonies, where large quantities of wines, brandies, and other European goods, together with tea, coffee, spices, etc., from the East Indies, were smuggled into the larger cities. But the most extensive illicit trade was carried on with the West Indies. In 1700 one third of the trade at Boston and New York was said to be in violation of the law. It must be remembered, however, that such contraband trade was regarded in the colonies as perfectly justifiable in view of the restrictive commercial legislation, and that some of the most reputable men were engaged in it.[1] On the coasts of England itself, it is estimated that there were at this time about forty thousand smugglers. Certain it is that the general practice of smuggling and the evasion of the laws made the restrictive legislation of England bear less heavily upon the colonists than it otherwise would have done. Indeed, had it not been for the profits from this illicit trade, the colonies would never have been able to pay for the enormous amount of British manufactures and European commodities annually imported from England; this amounted to between £350,000 and £400,000 a year, and was paid for only in part by the colonial products exported directly to England. Lord Sheffield estimated that by means of this indirect and illicit trade the colonies must have remitted to England, between the years 1700 and 1773, upwards of £30,000,000.

[1] According to D. A. Wells, "The colonists were a nation of lawbreakers: nine tenths of the colonial merchants were smugglers. One quarter of the whole number of the signers of the Declaration of Independence were bred to the contraband trade. John Hancock was the prince of contraband traders, and, with John Adams as his counsel, was on trial before the Admiralty Court in Boston at the exact hour of the shedding of blood at Lexington, to answer for half a million dollars' penalties alleged to have been by him incurred as a smuggler." [Lalor's Cyclopedia of Political Science, I, 75.]

SUGGESTIVE TOPICS AND QUESTIONS: CHAPTER III

1. When and by whom was the Mercantile System given expression? [Ingram, Hist. of Pol. Econ., 34–56; Rabbeno, chaps. 1, 2, 3; Schmoller, The Mercantile System; encyclopedias.]

2. What was the history of the Dutch East India Company? [Day, The Dutch in Java, chaps. 2, 3; encyclopedias.]

3. The history of the English East India Company? [Warner, Landmarks of Engl. Ind. Hist., 202; Beckles Willson, Ledger and Sword; encyclopedias.]

4. Does any modern system of governmental regulation of industry remind you of mercantilism? How?

5. Was the English colonial system a benefit or an injury to the colonies? [Ashley, in Quart. Journ. of Econ., XIV, 1–29; A. Smith, Wealth of Nations, book IV, chap. 7, part 2; Beer, The Commercial Policy of England; Rabbeno, chap. 3; Wilson, Hist. of the Amer. People, II.]

6. Was the English colonial system advantageous to England? [As above; Rabbeno, 37–47; Ricardo, Princ. of Pol. Econ. and Taxation, chap. 25.]

7. Why did England endeavor to stimulate the production of naval stores in the colonies? [Lord, Industrial Experiments in the British Colonies of No. Amer., 56.]

8. What was the bounty system as applied to the colonies? Are they granted in the United States to-day? What are the advantages or disadvantages of the system? [Lord, Industrial Experiments, part 2; Hamilton, Report on Manufactures in Taussig's State Papers and Speeches on the Tariff, 79–103; also in Annals of Cong., *1791–1793*, 971–1034, and in Works.]

9. Was Grenville's contention that the colonists should pay a portion of the expense incurred in their defense just? [Trevelyan, Hist. of Amer. Rev., I; Coman, 96; Howard, Preliminaries of the Rev., chap. 6.]

10. In what respects did the American Association resemble the Consumers' League of to-day? [Bishop, I, 365–383; Coman, 94; Bliss, Encycl. of Soc. Ref., art. Consumers' League.]

11. Why were there so many smugglers in England at this time? What did they smuggle? [Beer, 131.]

12. Did the price of tobacco rise or fall during the colonial period? Were the price fluctuations caused by the "enumeration" of tobacco? [Beer, 50; Ashley, in Quart. Journ. Econ., XIV, 11.]

13. What was the "three-cornered" trade with Africa? [Weeden, II, chap. 12; Abbot, chap. 3; Coman, 76–77.]

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CHAPTER IV

COLONIAL INDUSTRIES

46. Industries in the colonies. — The economic life of the colonies was extremely simple, the main energies of the people being directed to the extractive industries. In addition to agriculture, which naturally in a new country claimed the first attention of the colonists, other industries soon sprang up as needs and opportunities directed. In New England, where agriculture by reason of the unfertile soil was least profitable, the chief occupations were lumbering, ship-building, trading, and fishing. The people of the middle States engaged in the fur trade, and, as did those of New England, in the manufacture of a wide range of household supplies; carpentry, blacksmithing, and tanning were generally carried on in every community, while the spinning-wheel, the loom, and the hand card were to be found in almost every house. In the South, on the contrary, there were few industries outside the plantations of sugar, tobacco, rice, and indigo; some naval stores were produced, chiefly in North Carolina, but the varied household manufactures of the North were entirely lacking, even the most necessary supplies being procured from the northern colonies or from England.

47. Lumbering. — From the very beginning the efforts of the colonists were directed to the utilization of the almost exhaustless resources of the forests which surrounded them. Although in the southern colonies the magnificent forests were regarded rather as an encumbrance and recklessly cleared off to make room for the all-consuming tobacco, in the North they were early utilized as a cheap and quick export. Even by hand a man could make 15,000 clapboards or pipe-staves in a

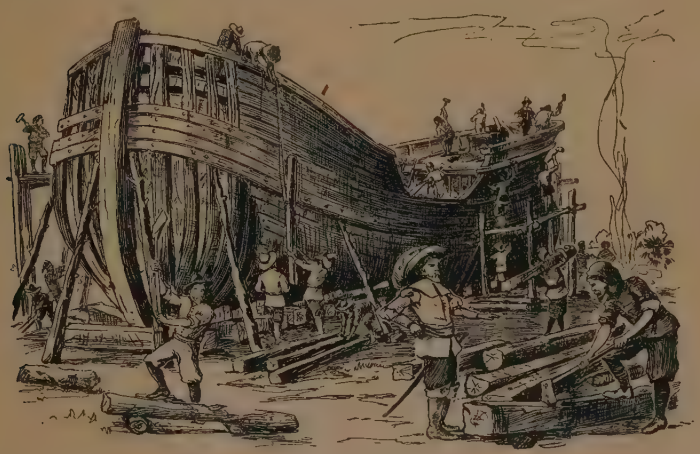
year, which, according to Wright, were worth in the colonies £4 per thousand, and in the Canaries £20. Owing to the scarcity of labor, however, it was exceedingly desirable to have machinery to do the work. Artisans were sent as early as 1620 to Virginia to set up a sawmill, but none seems to have been erected until 1652, when one was built at a cost of forty-[illegible] beaver skins. The first mill in the colonies is stated by [illegible] to have existed in Dorchester, New England, as early as 1633, which was thirty-five years before they were introduced [illegible]. The Dutch built many mills along the Hudson to [illegible] water. The New Hampshire and Maine settlements were at first composed almost entirely of timber cutters, and [illegible] a sawmill as early as 1635.

The lumber exported [illegible] of staves and heading, shingles, hoops, boards, and [illegible] sorts for masts, spars, and buildings. Owing to the [illegible] destruction of her own forests in the iron industry, Eng[illegible] to secure for herself the colonial supply of timber [illegible] on the list of "enumerated" articles, while early [illegible] century she provided for its importation free of [illegible] suitable for masts were marked with a broad arrow [illegible] served for the use of the royal navy, under a penalty of £[illegible] for their alienation to other purposes. In spite of these acts most of the lumber exported went to the West Indies, and to Spain and Portugal. In 1770 the value of the lumber exported from the colonies was about $775,000.

48. Naval stores. — Closely allied to lumbering was the production of naval stores, which Parliament made vigorous efforts to develop during the eighteenth century. England had imported these articles principally from Sweden, and when at the beginning of this period the Swedish company which controlled their supply attempted to raise the price, Parliament turned for relief to the North American colonies. In 1706 a bounty of £4 per ton was given on the importation of [illegible] pitch, £3 per ton on rosin and turpentine [illegible] rotted hemp, and upon all masts, yards, and [illegible]

ton of 40 feet. Except in North Carolina this policy was not very successful in stimulating the production of these articles. In 1770 the quantity of tar exported was 82,005 barrels; of pitch, 9,114; and of turpentine, 17,014 barrels, worth in all about $175,000.

In addition to the naval stores, pot and pearl ashes, oak bark, and some other products of the forest were produced in considerable quantities for exportation to England, where they were used in the manufactures of that country; their value in 1770 was estimated at $290,000.



COLONIAL SHIP BUILDING

Sea-going vessels began to be built in New England after 1630, and were soon sufficient for home needs. Planks of oak and tall, straight masts of fir could be had almost at the water's edge, while everywhere was pitch pine for the making of tar and turpentine. The colonists soon became excellent shipwrights.

49. Ship-building. — One of the most important industries in the colonies, particularly in New England, was ship-building. The industry was begun within three years after the establishment of Plymouth Colony, and by 1631 had already grown to such proportions as to require official regulation. In 1676 Massachusetts had a total of 730 vessels. Owing to the large

supplies of splendid timber at the water's very edge, cheaper and better vessels could be built in the American colonies than anywhere in Europe. Toward the end of this period an oak vessel could be built in Massachusetts for $24 a ton, while neither in England nor on the continent could a similar vessel be built for less than $50 a ton. American ships soon began not merely to carry on a vigorous trade at home, but to crowd out English shipping in the home ports. About fifty New England built vessels were annually sold abroad, and by 1775 about 398,000 tons or nearly one third of the tonnage afloat under the British flag had been built in American dockyards.

The ship-builders on the Thames more than once complained to Parliament of the effect of American competition upon their industry, but it must be noted that in this instance the Board of Trade placed no restriction upon the colonial industry. Indeed the effect of the navigation acts, which restricted all trade to English and colonial built shipping, greatly stimulated ship-building in the colonies. A contemporary account placed the number of American ships at 2000, and of seamen at 33,000, in 1775. The proportion of the vessels engaged in foreign trade owned at home differed greatly in the various colonies: in New England three fourths of such vessels were owned by men living in that section, while in the South only one fourth was so owned.

50. Fishing. — For years before the first English settlement in North America English fishermen had frequented the New England coast and established summer fishing stations, in some years employing as many as two hundred vessels and ten thousand men and boys in the Newfoundland fisheries. To the settlers at Plymouth John Smith gave some blunt but sensible advice, "the staple from hence to produce is fish," and it was in the fisheries in truth that New England gained her greatest wealth. The industry was developed early and throughout the whole of the colonial period remained a lucrative one. The cod fishery began about 1670, and developed so

rapidly that within five years 665 vessels were employed in this industry, which required the services of over four thousand seamen. About 1700 the whale fishery was begun and prosecuted with such success that by 1721 two hundred and sixty vessels were employed. Within fifty years the whales deserted the American coast, but were followed to the Arctic and Antarctic Oceans by the whalers. In 1771 this business employed 304 vessels, with 4059 seamen.

The fishing industry was confined exclusively to New England, and was estimated to bring in about £255,000 a year; during the colonial period not a vessel engaged in either the cod or whale fisheries was owned south of Connecticut. For that section it possessed great economic significance. The development of the cod and mackerel fisheries provided New England with a needed staple for foreign trade; they made the inhabitants a commercial and sea-going people, giving them a wider outlook and breaking down the isolation of a purely agricultural community; whale fishing brought in larger vessels and the practice of making longer voyages. The training which New England seamen received in the fisheries made them the best and most daring sailors in the world.

51. Colonial commerce. — Although the commerce and trade of the colonies kept expanding, by the end of the colonial period the total exports from all the colonies amounted to only $20,000,000. But so insignificant was the world's trade at that time that this comprised one seventh of the total commerce of England, and was considered sufficiently important for England to reserve it to herself. The importance of foreign commerce differed greatly in the different colonies. The absence of a staple agricultural export and the profitableness of the fisheries and of ship-building early made New Englanders the leading carriers of colonial commerce. On the other hand, while the tobacco trade of the southern colonies gave employment to some 4000 seamen, few of them lived in that section. Until about 1750 Boston was the most important seaport, sending out five or six hundred vessels annually

in the foreign trade alone. Newport ranked second, and New York third, with only about half as many ships as Boston. About the middle of the eighteenth century, Philadelphia secured the leading place as the chief port of North America, with an export trade of over $3,500,000 a year, and a total foreign commerce of over $5,000,000. Her situation made her the principal market for the meat and flour of the interior country.

52. Fur trading. — As wild animals abounded in the primeval forests of North America, trade in their valuable furs and skins was early developed, and throughout the colonial period remained an important frontier industry. The earliest English colonists traded for furs with the Indians in New England, but New York soon became the most important center of this trade because of its advantageous situation at the mouth of the Hudson River. The fur trade in New Netherlands was a monopoly of the Dutch West India Company, and so lucrative was the business that their first shipment of furs is reported to have brought in a profit of over $10,000; in eight years the annual return had amounted to $56,000. So profitable a business aroused keen competition and the fur traders pushed up the Hudson River to the Great Lakes, where they established a station at Oswego to intercept the Indians on their way down the St. Lawrence to Montreal; out along the valley of the Mohawk to the Illinois country, and across the Alleghanies to the Ohio River. There they came into conflict with the French, and the competition over the fur trade was one of the chief immediate causes of the French and Indian War.

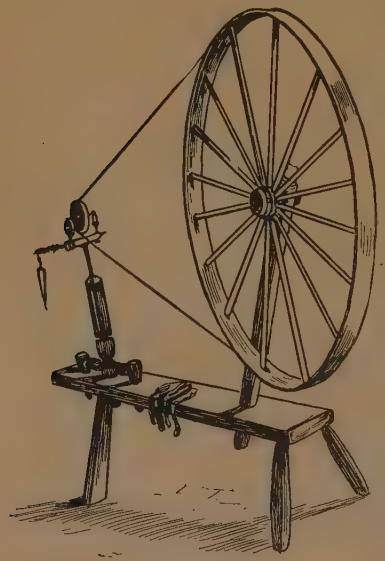
The fur trade possessed great economic importance in the early history of this country, because it furnished a ready, cheap, and yet valuable article of export for the northern colonies. But more than this, it furnished the initial incentive to westward exploration and settlement. As population became more dense and game more scarce the fur traders followed the retreating supply across the Alleghanies and

further west. The trading posts were soon taken up by the settler and the frontier was pushed ever further from the coast. In order to secure the diminishing supply for her own use, England in 1764 placed hides and skins on the list of enumerated articles. In 1770 the exports of furs and peltry from all the North American colonies, which included Canada, was about $670,000.

53. Household industries. — During the seventeenth and eighteenth centuries the domestic system of industry prevailed in England, under which handicrafts were carried on by workmen in their own homes. Many of the immigrants to America during this period had been artizans at home and brought with them to the New World considerable knowledge and skill in the mechanic arts. Furthermore, the sparse and scattered population made it necessary for the colonists to provide many things for themselves, for they were too civilized to revert to the rude Indian mode of life. In all the northern and middle colonies accordingly household industries flourished, and many of the farms and plantations were nearly self-sustaining economic units. Such necessary industries as soap and candle making, dressing and making up leather, carpentry, blacksmithing, spinning, weaving, the making of clothes and hats, and many other industries, were carried on within the home.

54. Attempts at manufacturing. — Of manufacturing proper, that is the production of goods outside the home for sale in the market or for export, there was comparatively little during the colonial period. Even Bishop, the diligent historian of American manufactures, admits that the history of the efforts made during the first one hundred years to introduce the manufacturing arts into the American colonies is "little more than a record of unsuccessful enterprise." Yet, even from the first, experiments were made in manufactures and several of the colonial governments gave special encouragement to such enterprises by bounties and other legislation. When iron came from Spain, leather from France or Germany, cloth from

England, it was thought that it would be more economical to produce these things at home. The first efforts of the Virginia colony were devoted in 1608 to the manufacture of pitch, tar, soap-ashes, and clapboards. But this was done under the direction of the council in London; Captain John Smith saw better the needs of the situation, and begged them to send over " husbandmen, gardeners, fishermen, blacksmiths, masons, and diggers up of trees' roots." These early experiments were mainly abortive, for the colonists soon found that they could more profitably devote themselves to other pursuits. The scarcity of labor, the lack of capital, and the hard conditions of pioneer life prevented the earlier colonists from engaging in the manufacture of products other than those which were absolutely necessary. South of the Potomac, indeed, even the necessaries of life were imported from Great Britain; manufacturing was developed, so far as it was developed at all, entirely in New England and the middle Colonies.



SPINNING WHEEL

On the spinning wheel the carded wool or prepared flax was drawn out into long, even yarn or thread. The spun yarn was later woven into cloth. So important a part did spinning play in the home life of colonial women, that an unmarried woman was known as a "spinster" from her chief occupation.

55. Textile manufactures. — The spinning and weaving of coarse " homespun " woolen and linen cloth for domestic use was carried on within the family from the earliest period of colonial history. Later, especially with the coming of immigrants skilled in the textile industries, the manufacture

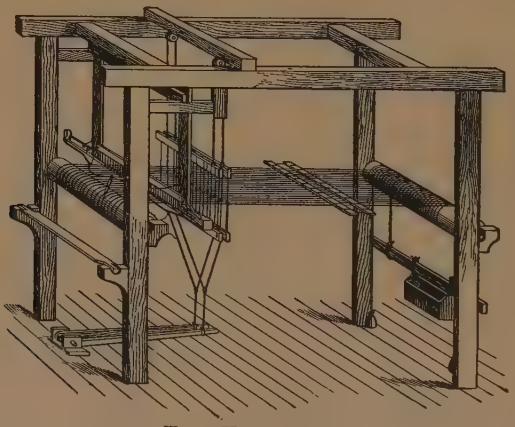
was more developed, and fulling mills were built. The investigation made by the Board of Trade and Plantations in 1731, "with respect to laws made, manufactures set up, or trade carried on in the colonies, detrimental to the trade, navigation, or manufactures of Great Britain," showed that the northern colonies already produced most of the cloth they consumed. Taking them altogether, the colonists probably made about three fourths of the textile goods for domestic use, but these were almost exclusively of the coarser grades. The finer qualities of linens and other goods continued to be imported from England and Ireland throughout this period.

56. Iron manufactures. — Iron was found in all the colonies in considerable abundance, in the form of bog iron ore, and its ease of mining and working, together with the abundance of fuel and water-power, led to an early development of the iron industry. Raw iron, agricultural implements, household utensils, tools, and firearms were produced in growing quantities, most of the iron wares being manufactured in the northern colonies, while raw iron was mined in the South and exported thence to England. The reports of the governors of various provinces in 1731 showed some six furnaces and nineteen forges, all in New England, but this was undoubtedly an understatement; they produced "not one fourth part enough to serve their own use." Twenty years later the colonies reported four slitting and rolling mills, ten forges, and five steel furnaces.

The development of the industry in the colonies led Parliament to prohibit, in 1750, the erection of any slitting or rolling mill, plating forge, or steel furnace, under a penalty of £200, in order to protect the home manufacturers. This act was one of the most injurious of the commercial restrictions upon colonial industry. At the same time the act provided for the development of the production of pig and bar iron by admitting it into the port of London free of duty (in 1757 this was extended to any port in England). England was at this time importing some 20,000 tons of Swedish and foreign iron, and hoped by this act to secure her raw material

from the colonies and at the same time to stifle the growing manufactures there. The exports of pig iron grew slowly, under the stimulus thus given, from about two thousand tons in 1745 to over seven thousand tons in 1771.

57. Other manufactures. — Various other manufactures existed in the colonies at an early period and were gradually



THE HAND LOOM

The weaving of the spun yarn is done on the loom. The two frames suspended from the top of the loom held the warp, the threads of which ran lengthwise of the piece of goods; these were moved backward and forward by the pedals below, which were operated by the feet of the weaver. The woof threads were woven into the warp by means of shuttles, which were thrown by hand back and forth between the woof threads. The power loom of to-day is constructed on the same principles, but is nearly automatic in operation.

developed to meet the growing wants of the people. Most of these, however, were for local consumption, and on a small scale. Such were corn and grist mills; leather goods of all descriptions, as boots, shoes, breeches, gloves, harness, and saddlery; furniture, cabinet wares; wagons, carriages, carts; cooper's wares, brass or copper wares, tinwares; bricks, tiles, and potteries; cordage, twine, and sail cloth; paper; spirituous

and malt liquors; salt; and beaver hats. Some of these articles were produced in sufficient quantities to allow of export to the other colonies, the West Indies, or even to England. Thus the Board of Trade and Plantations reported in 1731 that about 10,000 beaver hats were made annually in New England and New York; in the same year, in response to a petition of the London hatters, the exportation of hats from the colonies was prohibited and their further manufacture limited. The distillation of rum from West Indian molasses was an important New England industry, employing at one time over twenty distilleries in Newport alone; this was penalized by heavy duties by act of Parliament in 1733. Of the other industries the most important were the manufacture of bricks and tiles, leather goods, cordage and sail-cloth, and printing and paper making.

58. Colonial bounties and tariffs. — In accordance with the prevailing mercantilist doctrines the colonial governments, as well as that of Great Britain, thought it necessary to regulate trade and industry by legislation, and consequently practically every one of the colonies passed laws providing for bounties or duties. As the production of domestic cloth was especially desired, seven of the colonies offered bounties to stimulate the growth of wool and linen and their manufacture into cloth. Massachusetts, for instance, in 1640, ordered a general bounty of 25 per cent. on cloth production "for the incuragement of the manifocture," but repealed it three years later on account of the heavy drain on the treasury. Bounties were also offered for the production of silk, paper, iron, and firearms, by the various colonial governments; and of vines, indigo, cochineal, silk, and hemp by the London Society of Arts and Manufactures.

On the other hand, import or export duties were imposed by the colonial legislatures in nearly every colony in addition to those levied by England. These were sometimes for revenue purposes simply; sometimes for sumptuary, retaliatory, or protective purposes. No consistent or permanent policy was followed in these tariffs, and they were as frequently directed

against neighboring colonies as against foreign nations. Professor Wm. Hill classifies the main tariff duties under four heads: (1) tonnage duties or taxes on shipping; (2) export duties on tobacco; (3) import duties on slaves; (4) regular tariff schedules, in which wines and liquors were the most important items.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER IV

1. Why did England desire to promote the culture of silk in the colonies? [Smith, Wealth of Nations, book IV, chap. 2; Schmoller, The Mercantile System, 83 ff.]

2. Is raw silk produced in the United States to-day? Where does it come from? Why? [Adams, Com. Geog., 101.]

3. Are the fisheries off the Newfoundland banks open to all nations alike? Has it always been so? [McMaster, IV, 457–469; E. Schuyler, Amer. Diplomacy and Commerce, chap. 8; Henderson, Amer. Dipl. Questions, 471–500; Abbot, chap. 9; Marvin, chap. 13.]

4. Description of the lumber industry in the colonies. Has it progressed since? [Defebaugh, Hist. of Lumber Ind. of Amer., chaps. 26, 30; Wright, Ind. Evol., chap. 6.]

5. Describe the character and size of colonial vessels; the extent of their voyages and the kind of cargoes. [Marvin; Abbot; Coman, 77.]

6. Description of whale fishing. [Abbot, chap. 4; Marvin, chap. 8; Weeden, I, chap. 11; Pitkin, Stat. View of U. S., 43–47.]

7. How far west did the fur traders push? What kinds of furs did they get? [Crittenden, The Amer. Fur Trade of the Far West.]

8. History of the Hudson Bay Company. [Encycl.; Johnson, Great Events, XVIII, 258–274.]

9. What is the etymological meaning of "manufacture"? Is the original or the modern meaning more applicable to colonial manufactures? [Century Dict.]

10. How large were the early manufacturing enterprises in the colonies? Why was so much pains taken to develop them? [Bishop, I, index "manufactures."]

11. What effect did the enumeration by Great Britain of New England's agricultural products have upon the development of manufactures and commerce in that section? [Beer, 389; Weeden, I, 142.]

12. Where was mining developed in the colonies? Are any metals obtained from those same sections to-day? Why? [Bishop, I, chaps. 17, 18; Swank, Hist. of Manufacture of Iron, chaps. 9–11.]

13. Why did the colonies levy import duties against one another? Why do they not do so to-day? Which is better?

14. Describe the domestic system of industry. [Taylor, Factory System; Ashley, Early Hist. of Woollen Ind., in Publ. Amer. Econ. Asso., II, 366; also in Econ. Hist.; Cheyney, Introduction, 153, 185, 188, 220; Seligman, Princ. of Econ., 92.]

15. Describe more fully the following colonial manufactures: printing, brewing, paper, glass. [Bishop, I, see Index; Wright, Ind. Evol., chap. 5; Eggleston, Commerce in the Colonies.]

SELECTED REFERENCES. CHAPTER IV

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*Greene: Provincial America, chaps. 16, 17.

*Webster: General History of Commerce, 321–345.

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CHAPTER V

AGRICULTURE AND LAND TENURE

59. Colonial occupations. — During the colonial period agriculture was the main and, except in New York and New England, the only important industry. In those sections commerce and fishing afforded other outlets for enterprise, but even there agriculture remained the most important industry until after the beginning of the nineteenth century. When the first colonists landed they were compelled to resort immediately to the raising of food supplies, to keep them from starving, and what necessity dictated at first, was found later to afford the largest returns. In the Virginia Colony misguided efforts were made at the outset to direct the energies of the colonists into other channels, especially manufactures, by legislation and the offer of prizes and bounties, but the production of the more profitable tobacco soon absorbed all the energies of the colonists. In New England, on the other hand, the effects of a sterile soil and severe climate were supplemented by the restrictive legislation of England, which, by partially depriving the colonists of a market for their agricultural staples, helped to direct their efforts to fishing, ship-building, and commerce. The same circumstances characterized, to a less degree, the occupations of the middle colonies. In all the colonies, agriculture was the foundational industry, and limited and determined manufactures and commerce, where these existed.

60. Pioneer farming. — The great attraction offered by America to the industrious settler — as by every new country — was an assured and independent existence. Owing to the quantity of free land, to be had practically for the asking, and the great fertility of the soil, even the pioneer with little or no

capital could set up for himself and earn a living from the very beginning. Clearing a few acres for corn and a garden, and building a rude house alone or with the aid of his neighbors, he could, like the Indian, eke out his existence the first year or so with the aid of gun and net. After the second or third year, by clearing more land and raising a few cattle and hogs, his living was assured; and a large family, so far from being a burden, but made his work the easier. Such a pioneer farm, as were most of those in the northern colonies, was almost self-sufficing, producing practically everything needed in the household. All the necessary food, as well as flax, wool, and hemp for clothing, leather for shoes, lumber for building, were raised at home. The few things not thus produced, such as salt, sugar, tea, coffee, and iron implements, could be purchased with the surplus produce. Unless situated on a river, with easy access to a market, there was little or no money profit in such an undertaking; the average colonial farmer handled little ready cash in the course of his life.

In the South the character of the staple products — tobacco, rice, indigo, etc. — demanded considerable capital, and consequently the land fell into the hands of a wealthier set of proprietors. But even here the small farmer, without the necessary capital to buy slaves or large plantations, was able to support himself in comfort, if not in luxury. The interior counties of all the southern colonies saw a considerable settlement of these yeoman farmers.

61. A Jack of all trades. — While practically every man in the early colonial period was a farmer, every farmer was at times also hunter and trapper, lumberman, or sailor. The pioneer settler, as later the frontiersman, supplemented his efforts in the fields by hunting and fishing as long as game abounded. Both for personal use and for sale for cash or supplies furs were in constant demand. With the growth of settlements and the disappearance of wild game, the colonist devoted his spare time to getting out rough lumber products, such as planks, staves, and shingles. These could be made

during the long winter months, by the fireside of an evening, while the women spun or wove. On the coast ships were built, and from every New England town many a farmer's boy went on the fishing expeditions to the Newfoundland banks. It was not long before these industries became so important as to call for the full time of those who pursued them. With the growth of towns there was increasing opportunity also for division of occupations, but the farmer in the rural districts had to be a Jack of all trades throughout the whole colonial period. Even in the towns a man was accustomed to turn his hand to almost anything that offered. Weeden gives an account of one John Marshall, who was a good typical specimen of such laborers. He "received about 4 shillings a day at Braintree from 1697 to 1711. He farmed a little, made laths in the winter, was painter and carpenter, was messenger, and burned bricks, bought and sold live stock. He was a non-commissioned officer in the Braintree Company, and a constable of the precinct. In one day he could make 300 laths."

62. Agriculture of Europe. — We [illegible] the fairest picture of colonial agriculture if we [illegible] development in Europe at the time when Amer[illegible] the general equipment of knowledge and imple[illegible] the colonists began their work in this country dev[illegible] immediate advance. The principal cultivated plants of [illegible] and more particularly Great Britain, at the beginning of [illegible] seventeenth century were few: wheat, barley, oats, rye, beans, peas, vetches, onions, cabbages, and apples. The list of tools was still shorter: those drawn by domestic animals were the plow, harrow, and cart; of hand implements, there were the sickle, hoe, and spade, essentially the same as had been used by the Egyptians four thousand years before; the flail and fanning mill, and the axe, completed the list. But simultaneously with the settlement of America there began a wonderful improvement in the agriculture of Great Britain through the introduction of the turnip and other root crops, the clovers and artificial grasses. These made possible a more scientific

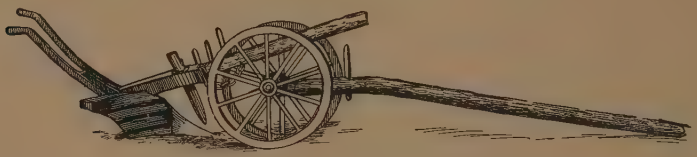
rotation of crops and the abandonment of the wasteful two-field and three-field system. This improvement in British agriculture continued for over a century, from about 1600 to 1732, and emigrants to America during this period brought with them the results of these advances.

63. Indian agriculture. — The colonists were also the beneficiaries of the knowledge of the Indians, from whom they rapidly learned the best methods of raising the indigenous crops, as well as economical methods of clearing and preparing the land for cultivation. As the early colonists practically adopted the Indian methods a description of these will serve as a picture of primitive colonial agriculture. Localities naturally devoid of trees were selected for cultivation where possible, or partial clearings were made in the forest by killing the trees, either by girdling them with stone axes or by building fires around their bases. When they fell, they were burned into suitable lengths, rolled into a heap and reduced to ashes; in this way the land was cleared with a minimum of labor. It was estimated that an industrious woman could burn off as many dry fallen trees in a day as a strong man could cut with a steel axe in two or three days. Even before the deadened trees fell the underbrush was cleared off and the corn planted amid the standing trunks. The corn was planted in rows, and a dead fish often dropped as a fertilizer into the hole with the kernels; later it was hilled a foot or two high, and beans and pumpkins planted between the rows. This primitive agriculture was not merely rude; it was extremely wasteful and disorderly. But it had the merit of yielding quick and fairly large immediate returns for a minimum of labor expended, and on this account was largely employed by the early colonists.

64. Colonial methods of farming. — The processes and methods of farming were primitive and traditional during the whole of the colonial period. Custom and often superstition controlled every step, and there was little or no advance made after the middle of the eighteenth century, when agriculture had probably fallen to its lowest ebb. Rotation of crops was

unknown and manures were but little used. The Swedish traveler Kalm, writing of the James River Colony in 1748–9, said, "They make scarce any manure for their corn-fields, but when one piece of ground has been exhausted by continual cropping, they clear and cultivate another piece of fresh land, and when that is exhausted proceed to a third." Near the seacoast, indeed, they did fertilize their crops by planting fish with the grain, as they had been taught by the Indians, but this was not everywhere possible.

Contemporary critics invariably called attention to the wasteful and unintelligent methods of agriculture practised in all the colonies. The author of "American Husbandry," writing



A Colonial Wheel Plow of 1748.

The plow, which was clumsy and short, was sometimes attached to a pair of wheels. The ill-shaped share and mold-board did not plow deep or straight, and great strength and skill were necessary to guide the plow. "The wheels upon which the plow-beam is placed, are as thick as the wheels of a cart, and all the woodwork is so clumsily made that it requires a horse to draw the plow along a smooth field." (Kalm, "Travels in No. Amer.," II, 195).

just before the Revolution, criticises severely the general practice of exhausting the land by planting the same crop year after year: "they have not a just idea of the importance of throwing their crops into a proper arrangement, so as one may be a preparation for another, and thereby saving the barren expence of a mere fallow." He complains of the lack of enclosed fields to keep out the cattle, of the insufficient and slovenly tillage — "worse ploughing is nowhere to be seen," — and finally of the poorness of their implements. On the other hand, it must be remembered that the soil was extremely rich and did not require very careful tillage to yield large returns. And when the productiveness of the soil was reduced

it was cheaper to take up fresh land, of which there were practically unlimited quantities, than to restore the exhausted qualities. While it was not possible to apply European standards to the totally different conditions in America, still it must be admitted that this process of "earth-butchery" led to bad habits and was ultimately wasteful — a fact to which the country has only recently awaked.

65. Experimentation and adaptation. — The problems presented to the colonists in the growth of crops were many and peculiar. They came to a country whose climate and soil were unfamiliar to them. The qualities of the native plants with which they were confronted had to be determined by experience. Seeds and plants from every part of Europe and even from Asia and the West Indies, which were brought here by settlers, had first to be tried in each colony before it was known in what soil or clime they would best flourish. For a century and a half this process of experimentation, adaptation, naturalization, and selection continued in all the American colonies, and so successfully that in the next one hundred years only a single commercially important new plant, namely sorghum, was introduced into the United States. "Hemp, indigo, rice, cotton, madder, millet, spelt, lentils, lucerne, sainfoin, were tried and failed in New England." In the southern colonies wine and silk culture, and such products as cinnamon, olives, and allspice, were tried, but were found unsuited to that climate. On the other hand, many European crops proved to be especially adapted to the new environment and have become fully acclimatized. There was, however, practically no improvement in the plants, vegetables, and fruits by culture and selection, after they were once introduced.

66. Native plants. — To the early settlers the indigenous plants which they found in the new world were of far greater importance than those which they brought with them. Of these, by far the most important at the time and in the subsequent history of the country was *maize* or Indian corn. The advantages of this grain lay not merely in the speedy maturity,

the large yield, the independence of seasonal changes, and the usefulness of all parts of the plant, but especially in the ease with which it was cultivated. The early settlers soon learned from the Indians the trick of planting it among the deadened forest trees, without ploughing, with the pumpkin in the interstices of the hills. Without this grain the early settlements would have been much more difficult of establishment. Maize, indeed, formed the main food crop of the colonists throughout their entire history.

HAND CORN SHELLER

To shell corn from the ears was one of the tasks carried on in colonial times during the long winter evenings. It was usually done by scraping the ears on the iron edge of the shovel or the handle of a frying-pan, but sometimes primitive hand-machines were used.

Of considerable consequence also was the *potato*, both sweet and white. The food value and methods of cooking the former were early learned from the Indians and the sweet potato was in general use throughout the southern colonies. While the early history is somewhat obscure it seems certain that the white potato was carried from Peru or Chili, where it was indigenous, into Spain about the middle of the sixteenth century. From that country its use spread throughout Europe, and it was introduced from England into North America by the colonists early in the eighteenth century. Since that time it has been an article of general consumption, although it has not occupied such an important place in this country as in the European dietary.

Timothy is another distinctively American plant, its cultivation having begun about 1750. A few years later it was introduced into England from this country. This plant was of vast economic importance in the northern portions of the United States, where it was necessary to feed live-stock

during the winter upon hay gathered during the summer months. In the earlier colonial period cattle often starved to death in the long, severe winter, owing to a scarcity of food.

Among other plants which the early colonists found, and which had an important effect upon their dietary, should be mentioned the *pumpkin, squash,* and probably also the *strawberry.*

TOBACCO FIELD

Tobacco is grown in many parts of the United States, from southern Wisconsin to Louisiana, but the largest tobacco area, about 600 miles long and 400 miles wide, extends from Kentucky to Maryland, and from central Ohio to North Carolina. The illustration shows a modern tobacco field of the best type, as is evidenced by the size of the plants. The head of the plant to the left of the man is tied up in white paper to catch the seed.

67. Tobacco. — Of all America's gifts to the Old World the most widely accepted has been *tobacco.* It was mentioned in Columbus's diary for November 20, 1492, and is commonly understood to have been introduced from America into England by Sir Walter Raleigh about 1584. It soon came into general

use and was made the object of regulation by successive English monarchs. In 1624 it became a royal monopoly, and in 1624, 1627, and again in 1631, the cultivation of the plant in England was forbidden. About 1616 its serious cultivation began in Virginia, and from that time increased rapidly, until it had displaced all other crops and most other forms of industry. From the very beginning tobacco was one of the greatest articles of export from the North American colonies, constituting between one fourth and one half of all the exports during the colonial period. The first shipment, in 1619, amounted to 20,000 pounds; in the ten years 1700 to 1709 the average annual export was 28,858,666 pounds; by 1775, 85,000 hogsheads were exported annually, whose value was about $4,000,000.

The production of tobacco was carried on in a very wasteful manner: the land was cleared by girdling the trees, and was then planted in tobacco for three years and afterwards in corn. As artificial fertilizing was not resorted to, this method resulted in exhaustion of the soil in from three to eight years, when fresh land had to be taken up. The population was consequently widely dispersed, the plantations of Virginia in 1685 covering an area as large as England itself.

The table,[1] on page 71, gives a partial list of plants of American origin.

68. Other plants. — The principal European grains and fruits were early introduced into the colonies, and their cultivation proceeded side by side with those of native origin. Indeed, the majority of the plants of great economic value to-day are of foreign origin. Next to maize the principal crops of the North were rye and buckwheat, and following these wheat, oats, and some barley. The culture of wheat was given special attention and met with considerable success in the middle colonies. In the southern colonies, after tobacco, rice was the most important crop. Introduced into South Carolina in 1694, it grew abundantly; by 1724, 100,000 barrels

[1] Hill, Lectures on History of Agriculture, 99.

were exported from that colony alone, and in 1761, when the white population was not more than 45,000, the value of the rice crop was over $1,500,000. Little cotton was produced during this period, but indigo, which was first successfully planted in 1741, was of considerable importance; in the last decade before the Revolution, South Carolina alone exported 500,000 pounds a year, worth from two to five shillings a pound. Various fruits were early brought over from Europe, and grown wherever climate and soil were favorable, of which apples and pears were the most common; in addition to these were stores of wild fruits, as plums, grapes, and cherries, and berries and nuts to be had for the gathering.

	Very ancient cultivation in America	Cultivated before discovery of America, but of no great antiquity	Cultivated only since discovery of America
Cultivated for underground parts	Sweet potato	Jerusalem artichoke Potato	
Cultivated for stem and leaves	Tobacco	American aloe	Quinine Timothy Orchard grass
Cultivated for fruit		Pumpkin Squash Red pepper Tomato Pineapple	Strawberry [Cranberry?]
Cultivated for seeds	Maize	Sugar bean Barbadoes cotton Peanut	

In general the principal agricultural products of the colonies were as follows: New England and the middle colonies, corn, rye, oats, buckwheat, wheat, and barley, with some tobacco

from Connecticut; Maryland and Virginia, tobacco; the Carolinas, tobacco, rice, indigo, corn, and a little cotton; Georgia, rice and indigo. Wool, flax, and hemp were also raised in considerable quantities for home use in the different colonies.

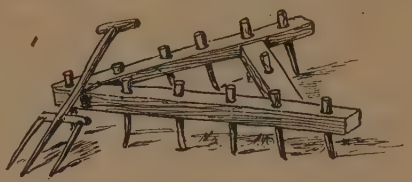
69. Live stock. — European cattle were imported into Spanish, French, and English colonies at a very early date, and increased very rapidly, especially in the South and Southwest. The cattle brought over from England were much smaller than our present stock. According to Prothero, the average size of cattle and sheep sold in Smithfield market, London, as late as 1710, was, beeves, 370 lbs.; calves, 50 lbs.; sheep, 28 lbs.; lambs, 18 lbs. The reason for the small size was that little or no attention was paid to the culture of grasses and vegetables for feeding the stock; they were left to graze, winter and summer. In 1795, after the general introduction into England of root crops and artificial grasses and clovers, the weights in London were beeves, 800 lbs.; calves, 148 lbs.; sheep, 80 lbs.; lambs, 50 lbs.

The severe climate of New England caused a deterioration in the stock of that section; in the southern colonies, where they were turned loose in the forests, they multiplied rapidly. The author of "American Husbandry" reserved his severest criticism for this feature of American farming: "Most of the farmers in this country are, in whatever concerns cattle, the most ignorant set of men in the world. Nor do I know of any country in which animals are worse treated. Horses are in general, even valuable ones, worked hard, and starved: they plough, cart, and ride them to death, at the same time that they give very little heed to their food; after the hardest day's work, all the nourishment they are like to have is to be turned into a wood, where the shoots and weeds form the chief of the pasture; unless it be after the hay is in, when they get a share of the after-grass. . . . This bad treatment extends to draft oxen; to their cows, sheep, and swine."

By 1639, the Jamestown Colony, in spite of this bad treatment, already had 30,000 cattle; in 1770, Wynne described the

large herds, often numbering a thousand cattle, that were found in the Carolinas. Cattle-raising was an important frontier industry in many of the colonies, and dairy products were yielded in all of them for home use. Considerable quantities of butter and cheese were produced in New Jersey for export. Of animal food there were also, in addition to domesticated animals, plentiful supplies of wild game and fish in all the colonies.

70. Farm implements. — One of the greatest obstacles to agricultural progress was the scarcity and rudeness of the farming implements which the colonists possessed. Plows were imported from time to time, but they were extremely heavy and unwieldy. In 1637, there were but 37 plows in the colony of Massachusetts Bay, and towns often paid a bounty to any one who would keep a plow in repair, in order to do the plowing for the community. Virginia was rather better off in this respect, having 150 plows by 1648. The massive old wooden plow, with mold-board of wood, required frequently four oxen and three men to manage it. In addition to this implement, the colonists had the spade, a clumsy wooden fork, and now and then a harrow. All of these were clumsily made of wood; the only metal available was made of bog iron ore, which was very brittle and made the implement liable to break in the middle of a day's work. The grain was usually separated from the chaff in the southern provinces by the treading of horses on threshing-floors; in the North the flail, though slower, was more generally used.



WOODEN HARROW AND FORK

The harrow was triangular, and yoked with one of the angles forward in order to pass more easily around stumps of trees and other obstacles. The teeth of the harrow, as well as the fork, were made entirely of wood.

71. Land tenures. — At the time of the settlement of North America land in Europe was still generally held on feudal tenures,

and the possession of land carried with it both social and economic privileges. The land system was a most intricate one, and land could be transferred only by elaborate feudal methods, while the rights of inheritance and bequest were still further limited. Ownership vested in a few, and not even the greatest thrift could obtain for the poor man a farm of his own. But land in a new country, where it could be had almost for the asking, soon came to be held and transferred like any other species of property, and ownership of it conferred no special rights, except as it was sometimes made a condition to office-holding or the franchise. In some, especially the proprietary colonies, large estates were created whose proprietors enjoyed special privileges, while it was also made difficult for small proprietors to secure land. The Revolution, however, swept away practically all traces of feudal land tenure or feudal land laws. Generally speaking, the older colonies were founded by private companies or individuals, and the land was commonly vested in them, and by them regranted to immigrants, usually upon payment of a quitrent. In the other colonies, and even in time in the proprietary colonies, the land was taken up by the settlers according to their needs and pleasure.

72. Land-holding in New England and the middle colonies. — When the first settlement was made, the Pilgrims held their land and other property on a communal basis, turning their labor and products into a common pool, but a few years of failure caused the abandonment of this plan, as had been the case several years before in Virginia. The land was taken up by individuals, title being given by the London Company or by the crown; generally, too, care was taken to extinguish the Indian title. Each of the original or new settlers was granted a certain number of acres as his share in the colony. Large estates never grew up in New England, but small farms were the rule, owing largely to the character of the soil and the crops, which necessitated careful cultivation. Throughout the whole section, and as far south as Delaware, communal holdings in the towns were also found; fields — usually three —

were at first held in common, and the cultivation was decided each year in general meeting. Later, as the towns filled up and grew strong enough to protect outlying fields against raids, the arable meadow, and wood land was divided.

In the middle colonies, the land system was practically the same as in New England, both in character and results. Small farms held in fee simple were the rule. The only exception lay in the large manorial grants made by the Dutch and confirmed and extended by the early English governors in New York. The manorial system, however, was restricted to the valley of the Hudson, and the large estates of from 50,000 to even 1,000,000 acres lay in large part uncultivated until they were broken up into small holdings.

73. The plantations of the South. — While small farms were characteristic of the North, large plantations were in vogue in the South, though in both sections there were exceptions to the general rule. These large landed estates were owned by comparatively few proprietors, who constituted an aristocratic upper class in a strongly stratified society. The difference between New England and the South was mainly the result of economic causes: the fertile soil and the presence of a few staples which lent themselves to extensive cultivation made the large plantation profitable in the southern colonies. The average size of the Virginia estate was about 5000 acres, while in New England the average farm was probably not far from 100 acres. On the other hand, in the seventeenth century, the value of an acre of New England land was about fourteen times that of an acre in Virginia.

The law and practice regarding grants and inheritance was also partly responsible for the enormous estates of Virginia and of other colonies. Grants were made to the companies and "adventurers," who undertook to establish colonies; as "head right" for the importation of settlers; to the settlers themselves; for meritorious service, to clergymen, physicians, and even to servants; or as gifts for purely personal reasons. The occupation of the land granted and the payment of a

small annual quitrent were the usual conditions to the issuance of a patent.

Inheritance in the southern colonies, as also in New York, followed the law of primogeniture; the principle of entail was even more strictly applied in these colonies than in England. In New England and Pennsylvania, while the right of the eldest son was still recognized, he received only a double portion, the rest of the property being divided equally among the other children. Primogeniture and entail were not abolished entirely until the Revolution.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER V

1. What were the characteristics of land tenure in feudal times? [Bliss, Encycl. of Soc. Ref., art. Land; A. R. Wallace, Land Nationalization, 22–25; de Laveleye, Primitive Property.]

2. What objections are there to primogeniture and entail? [J. S. Mill, Princ. of Pol. Econ., book 2, chap. 2; Bliss, Encycl. of Soc. Ref., art. Entail.]

3. What was livery of seizin? Is it as easy to transfer land to-day as other kinds of wealth? [Eggleston, Transit of Civilization, 275; Robinson, Elementary Law, sects. 75, 76.]

4. Describe the two-field and three-field systems of agriculture in Europe. [Price, Engl. Com. and Ind., 25, 102; Cunningham, Outlines, 172–174; Warner, Landmarks, 20, 27; Cheyney, Introduction, 36.]

5. Compare the life of a tenant farmer in England with that of a free farmer in the colonies. [Brown, Genesis of U. S., I, 252, 352, 506, 688; American Husbandry, I, 122, 190–191.]

6. Is "earth-butchery" still practised in the United States?

7. Do you know of any plants that have been tried and have failed to grow in your locality? Why?

8. Where did the herds of horses which the later western pioneers found on the prairies come from? What was the origin of the so-called "native" cattle?

9. Describe the treatment of the Indians in the acquisition of title to land by the whites. [Bruce, I, 487-499.]

10. Why did the attempts at communalism fail in Jamestown and Plymouth? [Fiske, Old Va. and Her Neighbors, I, chap. 4; Osgood, Amer. Col. in XVIIth Cent., I, part 1, chaps. 3, 5; Brown, Genesis of U. S., I, 402–413.]

11. Was it wise for the early colonists to kill and burn the forests?

12. Where were the forests most extensive? [Shaler, in Winsor, IV, 14.]

13. Describe the attempts of the colonists to produce wine, silk, etc. [Bishop, I, *passim*.]

14. Compare the native edible plants, and animals capable of domestication, in the Old and New Worlds. [Shaler, Nature and Man in America, 145.]

15. How did the colonists gain title to their land? Was the same true in all the colonies? [Coman, 28, 32–38; Bruce, I, 502–519; Osgood, Amer. Col. in XVIIth cent., I, part 2, chap. 11.]

16. What effect has the cultivation of tobacco had upon the economic organization of Virginia? [Coman, 56–57; Bruce, I, chap. 7; Fiske, Old Va. and Her Neighbors, I, 223–231, II, 184–220; Ballagh, Land Syst. of So., 117–119.]

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CHAPTER VI

THE SYSTEMS OF LABOR

74. Labor conditions in England. — A glance at the condition of labor in England at the beginning of the seventeenth century will enable us to understand better the situation in the colonies. The opening of the New World and the extension of freedom in politics and religion had brought little improvement into the lot of the workingman in the Old World. With long hours and heavy toil, his freedom of movement restricted to his native parish, his wages laid down and prices of goods fixed by the justices, and few opportunities for employment, his lot was indeed in many respects a hard one.

From the eleventh to the middle of the fourteenth century the mass of the laborers were in a state of villeinage, under which the villein held a virgate (about thirty acres) of land in the common fields of the manor, in return for which he rendered certain services to his lord; legally, he was annexed to the manor and could not leave it. Although villeinage had been abolished as early as 1351, it still lingered in places until the beginning of the seventeenth century, and even where it disappeared long terms of service, during which the servant was little better than a slave, took its place. During his term of service, the labor of the servant was assignable and the servants were beaten, moved about, and sold like slaves. On the other hand, the cessation of war and the introduction of sheep-pastures had deprived many laborers of their accustomed employment, and forced them upon the highway in search of work, where they constituted a real menace to society. Small wonder is it to find, therefore, that both the workingmen themselves and the government of England looked to the

colonies for relief from the redundancy of an idle and needy population.

75. Scarcity of labor in the colonies. — In all the colonies there was a great lack of laborers. On the small farms of the North the proprietor cultivated his own land, with perhaps the help of his children, but in the southern colonies where large plantations were the rule and where large staple crops like tobacco were raised, there was constant need of additional laborers. As other industries grew up beside agriculture this need was intensified, and various systems of bringing laborers to America were devised. Many of the immigrants who came to the colonies were without means or lacked the energy to engage in industry on their own account, and hired themselves out as free laborers, but their number was never very large. Moreover, the abundance of free land and the large returns to the cultivator tempted most men to become independent farmers on a small scale rather than remain hired laborers. The proportion of free laborers differed in the various colonies, but was always greatest in New England, where slavery had the slightest foothold, and where industry was the most diversified.

76. Labor coöperation. — Owing to the scarcity of laborers who could be hired to work for pay, it was a general practice in New England, and also in the middle colonies, for the colonists to exchange labor with one another. Was a house to be erected, a barn to be raised, or a ship built and launched the settler called upon his neighbors to assist him in the larger operations that were beyond his strength or skill, or that called for the associated effort of several workers. The typical event that called for this coöperative system of labor was a house- or barn-raising; this was made a social occasion, the women attending to provide a bountiful repast, while the men strove with one another in a spirit of emulation. It did not take long at such a time to erect the frame, rafters, and ridge-pole of a building. Later, the more usual method for a man who desired to build a house was to agree with a carpenter or

mason for so many days' work, the owner working with him under his direction.

While labor was still very scarce and even the voluntary coöperation of neighbors could not always be depended on, legislation provided for the impressment of labor for such necessary services as harvesting crops. In New England artificers and mechanics might be compelled by the constable to leave their crafts and assist in the harvest-fields of their neighbors. The securing of the food supply thus ranked with military protection. In the South there was a larger proportion of servants — under which term were included not only hired laborers, but also apprentices and indentured servants, — and consequently the exchange of labor between independent artisans or plantation owners was never so important.

77. Indented servants. — Of servants or unfree laborers there were in the colonies two main classes: indented servants and slaves. The indented servants again were of two kinds — those whose servitude was voluntary and those whose servitude was involuntary. Voluntary servitude was based upon a free contract with a company or individual for a definite term of service in return for the payment of the servant's transportation and his maintenance during the period of service. The indented servants were free persons who emigrated for the purpose of improving their condition; at first, they came chiefly from England, but later large numbers were brought over from Ireland, Scotland, Wales, and Germany. Many of these bond servants sold themselves into servitude to the agents of planters, or to shipmasters or emigration brokers, or were enticed on board a departing ship by a so-called "spirit" or "crimp." This class of servants comprised the majority of those in servitude, and was confined chiefly to the middle colonies; in Maryland there seems to have existed a variation in the so-called "free-willers." They were transported on the condition that they be allowed a certain number of days in which to dispose of themselves to the best advantage; failing in this their services were sold to pay for their passage.

In general the servants transported before 1650 were bound for long terms of from seven to ten years or more; after the settlement of New York, New Jersey, the Carolinas, and Pennsylvania, the demand was increased and the term of service was reduced to four years. While at first many of these laborers belonged to a low class, some of them came from the educated and even upper classes. At the end of their terms of service they generally became independent proprietors or free laborers and were merged in the white population of the colonies, becoming often highly respected citizens.

78. Involuntary servitude. — The other large class was composed principally of paupers, vagrants, "loose and disorderly persons," and criminals, who were sent to the colonies by royal order or court sentence, or later by judges under the English penal statutes. The transportation of these persons to America seems to have been dictated at first largely by motives of humanity. There were at this time three hundred crimes in the English calendar for which capital punishment was inflicted, and justices often mercifully substituted transportation for death; at the same time the need of men in the colonies afforded an excuse for evasion of the death penalty. During the eighteenth century, by virtue of acts of Parliament, a convict was permitted to have his sentence commuted, in case of the death penalty, to fourteen years' service, while a seven years' service might be substituted for whipping and branding. While most of the convicts thus sent over belonged to the criminal class, many of them were guilty of nothing more serious than debt, and a large proportion were political prisoners who had engaged in some rebellious movement.

Acts were passed by the colonies designed to prevent the importation of convicts, and in 1671 an order was passed in England to put an end to the traffic. It seems not to have been observed, however, and in 1717 Parliament enacted a statute against the protests of the Virginia merchants providing for the transportation of convicts to America. The provinces of Virginia and Maryland received most of these convicts,

although they were not unknown elsewhere. Many of the planters preferred their services to those of the bond servants, as their terms were longer and their rights fewer.

It is impossible to state the proportion of laborers belonging to the two classes, but the indented servants were undoubtedly in the majority. Fifteen hundred a year is the estimate of Berkeley for Virginia in 1664; seventeen years later, it was stated that ten thousand persons were annually spirited away from Great Britain by kidnappers. In this same year there were in Virginia six thousand servants as against two thousand slaves.

79. Treatment of servants. — The treatment of servants was as various as the character of the masters. At first, a sort of good fellowship seems to have existed between masters and men, but as the numbers became greater a mass of legislation grew up to regulate their relations. The general condition of the bond servants was certainly a hard one, as is shown by the character of the laws to protect them. No servant could be sold out of the province in which he agreed to serve, without his consent; he must be furnished with sufficient and wholesome food, clothing, and lodging — it appeared that the food allowed was often a coarse diet of Indian meal and water sweetened with molasses, while lodging and clothing were poor and insufficient. Finally, the law provided that if a servant fell ill during his service, he must be cared for; the sick servant was often neglected lest the doctor's charges should exceed the value of his remaining service. The servant was also protected against unjust cruelty and bodily maiming; it must be remembered, however, that this was an age of flogging, and corporal punishment was meted out to soldiers and sailors, criminals, and children as well as servants.

On the other hand, the interests of the master who had invested his capital in servants were even more carefully protected. The great danger to which he was exposed was the loss of runaway servants, who fled to escape service or were tempted away with higher wages by rival employers. Both

the runaway and those who harbored him were punished by severe penalties.

80. Advantages of white servitude. — In the early colonial days when labor conditions were so unsettled and labor scarce, certain advantages doubtless existed in a system of servitude for white servants. The long terms of service with contract labor introduced an element of certainty, which was very important for those undertaking large and rather hazardous enterprises in a new country. It had generally the effect of an industrial or agricultural apprenticeship, and provided for the development of a class of small independent proprietors. Until well into the eighteenth century, when it was gradually supplanted by the system of slavery, it furnished the larger part of the labor supply of Virginia, Maryland, and of Pennsylvania. On the other hand, it must be said that the moral influence of the system was bad; the immorality of the women servants was a subject of constant complaint and legislation, while the system of kidnapping and sale of the labor of young boys, as well as the abuse of power by harsh masters, had a harmful effect.

81. The early slave-trade. — More important and far-reaching in its effects than the institution of white servitude was the introduction of negro slavery into North America. Slavery and the slave-trade have existed ever since a settled life made the compulsory service of captives more desirable than their extermination. The gradual progress of civilization had, however, led to a diminution of the enslavement of Christian peoples, and would doubtless soon have completely abolished it had not America been discovered. Negro slavery had long existed in Africa, and for fifty years before the discovery of America a regular traffic in slaves had been carried on by the Portuguese between Europe and Africa. There was, however, no place for slaves in Europe, except in the domestic service of the wealthy, but in the New World there was opened a new opportunity for their disposal and a new field for their labor.

82. Introduction of slavery into America. — When Spanish slave-holders emigrated to the West Indies, they brought their negro slaves with them, and while at first these were limited to those instructed in the Christian religion, the development of sugar growing and the need of labor soon broke down this restriction. The native Indians, too, were enslaved, but proved ill adapted to the hard labors required by their severe task-masters. At first the slave-trade was carried on by the Portuguese and Spanish, but later the Dutch and English (1562) engaged in the traffic. Thus for a century prior to the settlement of the Jamestown colony slavery had existed in the West Indies and a regular traffic in slaves had developed between the islands of North America and Africa. It was very naturally introduced into the English colonies on the continent from the West Indies; later a direct traffic with Africa sprang up.

In 1619 a Dutch privateer landed twenty negroes at Jamestown; the number increased but slowly, however, and in 1671 there were only two thousand slaves in Virginia. At first most of the slaves were supplied by the Royal African Company of England, but after 1688 the trade was thrown open, and many New England merchants engaged in the traffic. The first ship-load brought into Massachusetts was indeed returned at public expense, but as the West Indian trade increased in volume and importance the early scruples were overcome by the profits secured. During the eighteenth century a three-cornered trade was developed by New England, by means of which molasses was brought from the West Indies to New England where it was manufactured into rum; this was taken to Africa and exchanged for slaves, who were sold in the West Indies or the southern colonies.

It is difficult to ascertain even approximately the number of negroes whom the slave-traders carried off from Africa to the New World. At the beginning of the eighteenth century the total number carried each year to all the colonies by British vessels was estimated at 25,000; from 1713 to 1753 it ranged

between 15,000 and 20,000. In 1771 almost two hundred British vessels were engaged in the traffic, carrying annually 47,000 slaves from Africa. The number of Africans shipped by all nations was estimated at 97,000 in 1768. Only a small part of these found their way to the thirteen English colonies.

83. Distribution of slavery. — Slavery existed in all the colonies, but to a very different degree in different sections. In New England it had obtained the smallest foothold and was disappearing, not so much because of a moral sentiment against it as because, owing to the varied industrial development of that section, it was economically unprofitable. The Quakers of Pennsylvania were opposed to slavery, but in New York and New Jersey from eight to ten per cent. of the population was composed of slaves, who were treated with great leniency. South of Mason and Dixon's line the situation was quite different. Of the four hundred thousand slaves in the colonies in 1760, three fourths of them lived in the South; the proportion in the different colonies varied from thirty per cent. of the population in Maryland and forty per cent. in Virginia, to sixty per cent. in South Carolina.

In the tobacco colonies the treatment of the slaves was more patriarchal in character; but in the rice fields of South Carolina the worst excesses were found. Here the pestilential heat of the swamps, which drove the planters for relief to the seashore, proved fatal to the strongest negroes, who were forced to work at the severest labor under brutal overseers. It was found to be more profitable to work the slaves until they were worn out and then get fresh supplies rather than to spare them; the new slaves were usually secured direct from Africa and were consequently less tractable than the American-born negroes of Virginia. The constant fear of uprisings, owing to the numerical superiority of the slaves, and their propensity to run away, led to the harshest legislation against them. Herded together in gangs, with few women and no home life, they showed slavery at its worst.

84. The attitude toward slavery. — The colonists were at first opposed to the introduction of slavery and various acts were passed, in Massachusetts and Virginia, in Providence and Georgia, forbidding or restricting it. Among the English, however, by whom the slave-trade had already long been carried on with the West Indies, there were no such scruples. About 1663 a British Committee on Foreign Plantations declared that "black slaves are the most useful appurtenances of a plantation." Seventy years later the Lord Commissioners of Trade stated that "the colonies could not possibly subsist" without an adequate supply of slaves. Laws passed in the colonies to restrict the slave-trade were generally disallowed by the crown, and royal governors were warned that the colonists would not be permitted to "discourage a traffic so beneficial to the nation." The first effect of the introduction of servile labor indeed was to aid in the rapid clearing of the land and the production of new wealth. Without the system of slavery and the sister institution of white servitude, it may be said that the development of the South would have been greatly retarded and very different in kind. Gradually, as it was seen to be profitable, the objections of the colonists died away, and there was little scruple about owning slaves or engaging in the slave-trade.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER VI

1. What is said in the Constitution about involuntary servitude? Was this aimed against the colonial practices?

2. It has been said that the institution of human slavery was the greatest advance ever made in civilization. Criticise this statement.

3. What nation do you think was responsible for slavery in the colonies? [Bruce, II, chap. 11; Weeden, II, chap. 12.]

4. What was the "middle passage" in the slave trade? Why so called? Describe its horrors. [McMaster, II, 15; Weeden, II, chap. 12; Abbot, chap. 3; John Spear, The African Slave Trade.]

5. Did slavery spread rapidly or widely in the colonies? [Johnson, Great Events, XI, 81–92.]

6. Does slavery exist anywhere in the world to-day? [Encycl. Brit., art. Slavery.]

7. Is slavery necessary? Is it necessary that there should be domestic servants? Would society be better or worse off if there were none? [Schaeffle, Quintessence of Socialism, 111–112.]

8. Was there a considerable number of domestic servants in the colonies? Why? [Salmon, Domestic Service, chap. 3.]

9. What is "coolie labor," and where is it used? Is this any more excusable than slavery?

10. Were there any tramps in the colonies? Why are there any to-day in the United States? [A. G. Warner, American Charities, chap. 8.]

11. How was the scarcity of labor made good in Australia? [F. H. Wines, Punishment and Reformation, 162–171; E. F. DuCane, The Punishment and Prevention of Crime, chap. 5.]

12. What objections are there to sending criminals to penal colonies? [As above.]

13. Was the practice of "binding out" the children placed in poorhouses like that of indenting servants?

14. Has the lot of the servant improved in the last two hundred years? Is it better here than in Europe? Why?

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CHAPTER VII

POPULATION AND COMMUNICATION.

85. The growth of population. — Before closing this period, it will be well to survey briefly the growth of the population and the extent of inter-colonial communication, and to note their effect on the economic development of the colonies. During the seventeenth century the population of the English colonies in North America, after the first influx in 1630-40, grew but slowly. By 1640 there were only 25,000 whites in British North America, of whom sixty per cent. were in New England and most of the rest in Virginia. In 1660 this number had increased to 80,000, the largest gains having been made in Virginia and Maryland, which now had one half of the entire population. From this time on the middle colonies began to increase in importance, and in 1690 had about one fifth of the population of 200,000. A round half million seems to have been reached, according to Bancroft, in 1721, and a million in 1743; by 1770 the two million mark had been passed.

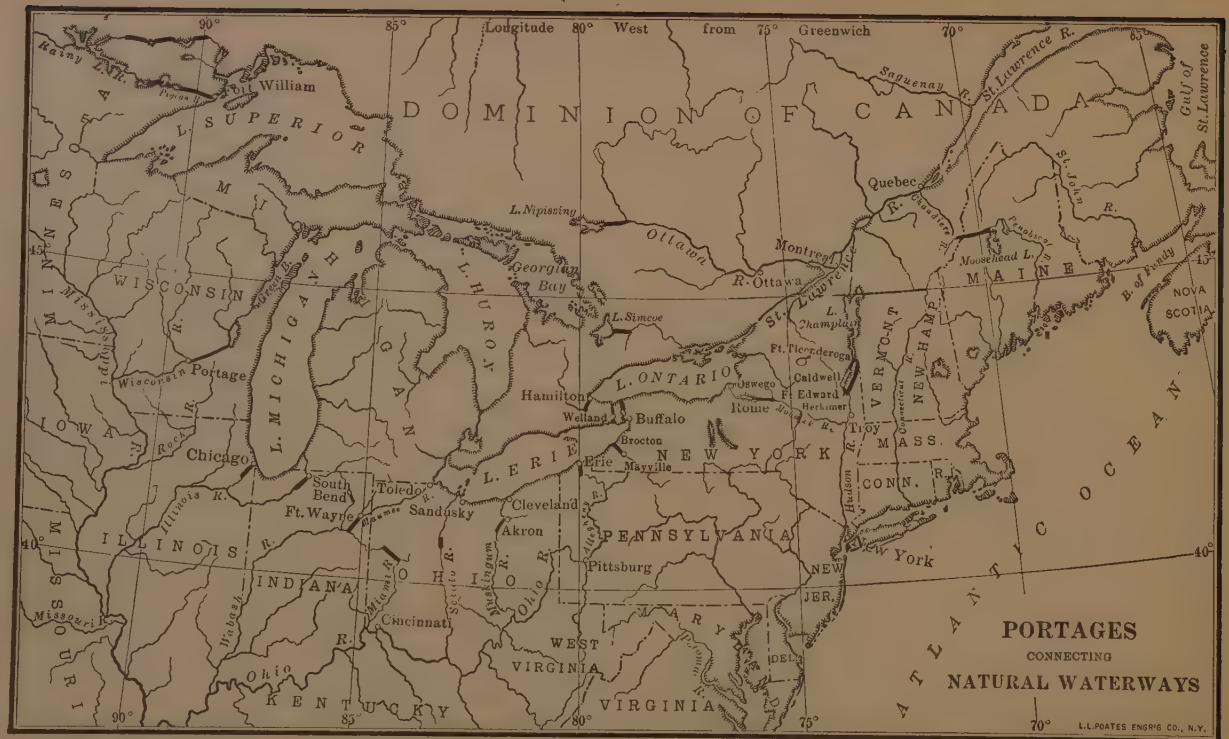
It is impossible to say how much of this increase was due to immigration and how much to natural increase, but in view of the dangers and difficulties of emigration, it is probable that after the first settlements the increase was mainly natural. Franklin, when he estimated in 1751 that there were "near a million souls" in the colonies, thought that scarce 80,000 had been brought over by sea. Subsistence was cheap so that there was no check upon the rapid increase of the population, which doubled about every twenty-three years. The majority of this population was of English stock, but even where the elements were diverse there was a steady and successful pressure upon the succeeding generations to make Englishmen of them. In 1775 Bancoft speaks of the colonies as inhabited

by persons only "one fifth of whom had for mother-tongue some other language than English." In New England, where the population was most homogeneous, it was computed that at the time of the Revolution ninety-eight per cent. of the population were Englishmen or of unmixed English descent.

86. Communication and transportation. — During nearly all the colonial period the majority of the colonists lived within reach of navigable water; separated by dense forests and tribes of hostile Indians, they found this the safest and easiest highway. With the light Indian birch-bark canoe it was possible to penetrate far inland on the interior streams. To pass the mountains, however, it was necessary to cross from the rivers flowing into the Atlantic to those emptying into the Mississippi. The portage thus became an object of the greatest interest and value to the early colonist and fur-trader. Forts were early established on the important portages, which were always the lowest and easiest ways over the watersheds. More recently roads and railways have followed the same lines, and the early Indian portages are now marked in many places by populous cities.

Most of the trade between the colonies was carried on by sea. Convenient harbors were numerous, and sailing vessels plied between the New England towns and those of the Middle and Southern colonies, and even with the distant West Indies. The long stretch of sheltered water in Long Island Sound greatly favored the coastwise trade. All the important cities of colonial times were seaports, as Boston, Newport, New York, Philadelphia, Baltimore, Charleston, and Savannah. Although the excellence of the water communication undoubtedly delayed the building of improved roads, it must be regarded as a great economic blessing to the struggling colonists, as it saved them much wearisome labor.

87. Colonial roads. — As the population pushed inland, other means of communication than those by water became necessary, and the Indian trails were used, being generally widened into bridle paths or roads for the use of wagons. Up to the time of the Revolution the roads were very poor, being



PORTAGES CONNECTING NATURAL WATER-WAYS

Along the line of the Indian portages the hunters and traders first penetrated into the wilderness. Later towns sprang up at these points.

constructed without system by the different localities; although in Massachusetts the General Court in 1639 had ordered each town to construct a highway to connect with that of the adjoining town. Few bridges existed in the colonies, and the shallower rivers had to be forded, while the broader or deeper ones were crossed by means of ferries. The cost of transportation was enormous, and usually prohibitive beyond 100 or 150 miles: the charge for hauling a cord of wood twenty miles was $3, for hauling a barrel of flour one hundred and fifty miles it was $5. Communication was infrequent; the first stage between New York and Philadelphia was not established until 1756, and the trip took three days. Communities were

STAGE COACH

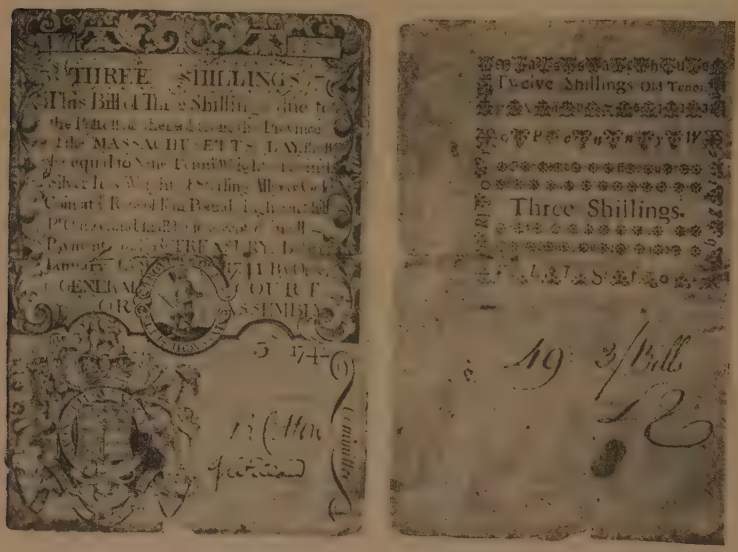
The stage coach did not reach its highest development until after the roads had been improved and turnpikes built. The first stage coach which ran directly from New York to Philadelphia — "the flying machine" — was started only a few years before the Revolution.

consequently isolated from one another, and yet the effect of the Appalachian barrier to the west was to cause a denser settlement of the Atlantic seaboard. In 1700, we are told by Shaler, "it was possible to ride from Portland, Maine, to Southern Virginia, sleeping each night at some considerable village."

As might be expected, the postal facilities in the colonies were of the most primitive character; letters and packages were generally carried by private messengers at high rates. An important advance was made when a general postal system was inaugurated by the second Continental Congress on July 26, 1775. Benjamin Franklin was placed at the head, and a line of posts established from Falmouth in New England to Savannah, Georgia.

This was gradually extended during the next few years and in 1789 was placed under the control of the postmaster general.

88. Money and trade. — There was very little metallic money in the colonies, and what little was brought over by incoming colonists was speedily sent back to pay for more valuable forms of capital. All exchange was slow and cum-



Massachusetts Colonial Currency

Massachusetts, together with the other colonies, issued bills of credit for the double purpose of providing a medium of exchange and of replenishing an empty treasury without the necessity of resorting to taxation. There were large over-issues and consequent depreciation, and in 1742 a new issue was authorized, called "new tenor" bills, in which the "old tenor" bills were to be redeemed at the rate of four to one. This is indicated on the reverse of the bill shown. After a mad career of paper money issues, Massachusetts finally resumed specie payments in 1750 and redeemed the outstanding bills in silver.

brous and business dragged heavily. Direct barter was largely resorted to, and when this became too inconvenient various commodities were used as money, often being given legal tender quality, such as tobacco, rice, corn, beaver skins, wam-

pum, and other articles. Debts were settled, taxes collected, and church tithes paid in these commodities.

To meet the need of a larger circulating medium for colonial exchanges paper money was early issued by the colonists; Massachusetts was the first to resort to the use of credit money in 1690, to finance an expedition against the French in Canada. Subsequently, colony after colony yielded to the temptation and issued paper money for various purposes. Numerous schemes were broached for establishing private banks to issue their notes upon the security of land or commodities. As the power of coining money, and hence of issuing paper money, was a royal prerogative, these acts of the colonists were always regarded with jealousy by the crown. In 1751 Parliament forbade the issue of bills of credit in New England, and thirteen years later extended this prohibition to the remaining colonies. The quarrels over this subject between colonial legislatures and royal governors, who, acting under royal instructions usually disallowed paper money issues, later formed one of the important though little emphasized causes of disaffection between the colonies and the mother-country.

89. Social institutions. — The colonists were for the most part an energetic, thrifty, high-minded, simple-hearted people. There were considerable divergencies in the different sections of the country, corresponding to differences in race, occupation, and environment. In New England, the population was remarkably homogeneous; persevering industry, in the face of an inhospitable environment, had secured for them general well-being, unmarked by either wealth or poverty. There was essential equality of condition, though the ministry and other professions constituted a virtual aristocracy of learning and birth. The population of the middle colonies was of all the sections the most heterogeneous, being composed of several nationalities. The occupations and general well-being were similar to those of New England, but the disposition of the people was not so stern and they were more given to social amusements. A great contrast to the democratic society of

the other sections was found in the southern colonies, where the population was divided into clearly marked social classes, at the head of which stood the large plantation owners and at the foot the negro slaves. The character of southern agriculture and the existence of slavery dispersed the population and prevented the growth of towns, so that there was little intercourse. In general the life in the colonies was simple and often rude, with few extremes of poverty or wealth, little in the way of luxuries, but an assured subsistence as the reward of industry.

90. Summary: Material progress. — The colonial period shows a rapid development toward economic independence on the part of the inhabitants of the different colonies, and an equally well-marked tendency toward sectional isolation. Bringing with them the existing tools and institutions of government of the Old World the colonists were able to wrest a livelihood from the rich resources of their new environment from the beginning. The aborigines, who had never passed beyond the stage of barbarism, were compelled to yield step by step to the superior culture and westward march of the pioneer. The combination of wonderful natural resources and of high qualities in the men who essayed the task of subjugating the new world resulted in steady progress.

Naturally, in a new country, the extractive industries were first developed. Agriculture was the most important single industry, and under the new conditions it grew along original lines, different from those which had developed under the feudal institutions of Europe. Other industries too sprang up in response to the economic needs of the colonists or the artificial regulations of the mother-country. In general the typical colonial community was comparatively isolated and economically self-sufficient, and had little intercourse with the rest of the world. By the middle of the eighteenth century great progress had been made toward settling and cultivating the territory on the Atlantic seaboard, but the American colonies were still in a primitive agricultural stage; such manufactures as were needed were generally made within the home.

91. Summary: Social development. — Such conditions fostered the growth of free institutions, and the constant struggle with nature developed strength of character and of body. In spite of certain social distinctions which the colonists brought over with them from an older civilization they were forced into a democratic mold by the essential equality of conditions in a primitive society. Equality and liberty were the ideals of the typical American colonist, while the abundance of free land led him to regard private property in land as hardly less sacred than his other rights. At one point, however, these ideals yielded to necessity — or greed. There was great need in all the colonies of labor, and in order to secure the desired supply slavery was early introduced. New England and the South shared in the gains from this nefarious traffic; for a while their interests seemed identical. Subsequently, the diverse economic, social, and political ideals which grew out of the contrasting labor systems of North and South led to complete estrangement of these sections. For the time being, however, sectional differences were harmonized in a common animosity against the mother-country, whose restrictive colonial policy began now to hinder the natural economic development of the colonies. The attempt on the part of England to enforce these restrictions led naturally to resistance from the colonists, and resulted inevitably in revolution.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER VII

1. What conclusions did Malthus reach from a study of the growth of population in the American colonies? [T. R. Malthus, The Principle of Population, chap. 6.]

2. Shaler says the Appalachian Mountains presented to the early colonists "a barrier almost as impassable as the Alps." What effect did this have on the settlement of the colonies, on trade, and on westward expansion? [Semple, Amer. Hist. and its Geographic Conditions, chap. 3].

3. Were there any considerable settlements during the colonial period that were not accessible by water? Where?

4. Do you know of any communities in the United States to-day which are without railroads or trolley lines? To what extent does exchange of goods or social intercourse take place?

5. How could one go by water inland (with portages) from the Atlantic to the Gulf of Mexico? to the Pacific? [Farrand, Basis of Amer. Hist., chap. 2.]

6. Did the comparative isolation of the colonies exercise any effect on the growth of ideas of political independence?

7. Why were the colonists so eager to issue paper money? Why did the English government object? [White, Money and Banking, 103–114; Bullock, Mon. Hist. of U. S., part 1, chaps. 3, 4; Dewey, Fin. Hist. of U. S., 18–30; Weeden, II, 473–491.]

8. Give the history of the Massachusetts "pine-tree" shilling. [Davis, Currency and Banking in Mass.; Eggleston, Commerce in the Colonies.]

9. Describe the life in some colonial college before the Revolution. [Hart, Hist. told by Contemp., II, 255–7, 266–275.]

10. Was there any considerable development of literature or art in the colonies? Explain your answer. [Bristed, Amer. and Her Resources, chap. 6; Greene, Provincial America, chap. 18; Wilson, Hist. of Amer. People, III, 83.]

11. Describe the social life, diet, dress, and domestic economy of the early colonists. [Lodge, English Col. in Amer., see Index; A. M. Earle, Home Life in Col. Days; Scudder, Men and Manners; Hart, Hist. told by Contemp., II, chap. 12.]

12. Is the population increasing as rapidly in the United States to-day as in colonial times? Is there any difference in the rate of increase in different parts of the country?

13. Could a country dispense more easily with money or with roads?

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PART II

STRUGGLE FOR COMMERCIAL AND ECONOMIC INDEPENDENCE (1763–1808)

CHAPTER VIII

AMERICAN COMMERCE AND COMMERCIAL POLICY

92. English policy of taxation. — Until 1763, as has been pointed out, the commercial restrictions imposed by England upon the colonies had been largely evaded or unenforced. By the conclusion of the Seven Years' War, in 1763, the fear of hostilities from the French had been removed and free scope given the colonists to devote themselves to material expansion, an opportunity of which they had been quick to avail themselves. The industries of the country had rapidly developed and an enforcement of the earlier restrictive legislation would have entailed great hardship.

Just at this time, however, changes were taking place in England which led to the insistence upon a stricter colonial policy. The beginnings of the industrial revolution made English manufacturers more eager than ever to monopolize colonial trade and stifle competition. It seemed only fair, moreover, that the expenses of the war with France, waged largely because of the colonists, and of the frontier conflicts with the Indians, should be borne, in part at least, by those benefited. Accordingly, a more vigorous policy of colonial taxation began to be enforced by successive English ministries.

93. Imposts in the colonies. — Under the leadership of Grenville, the prime-minister at that time, Parliament passed the Sugar Act of April, 1764, by which duties were laid upon indigo, coffee, wines, silks, and other East India and Oriental goods, calicoes, etc., imported into the American colonies,

and the existing duties upon sugar and molasses, which had previously been prohibitory, were lowered and placed upon a revenue basis. These measures affected New England especially and roused the utmost discontent in that section. Moreover, the laws were enforced most rigidly, even the naval vessels being used as revenue cutters. A year later, in March, 1765, the Stamp Act was passed, by which it was designed to raise money from the colonists for the maintenance of the soldiers in the colonies. Although this was repealed in the following year because of the opposition it aroused, it was followed, in 1767, by the so-called Townshend Acts, which provided among other things for a colonial revenue from an import duty on wine, oil, glass, paper, lead, painters' colors, and tea, imported into the colonies. Owing to increasing discontent in the colonies and to their complete failure as a revenue measure the Townshend Acts were repealed after two years, with the exception of the duty of 3*d* a pound upon tea, which was retained as a proof of Parliament's right to tax the colonists.

BRITISH TAX STAMP

One of the stamps to be used on legal documents in America under the Stamp Act of 1765, by which Parliament calculated to raise about £100,000 in taxes from the colonists.

94. Non-importation as a means of defense. — The right of England to regulate the commerce of the colonies had not been questioned before 1763, and in general the Navigation and other acts had been acquiesced in, with comparatively little complaint, by the colonists. And even now forcible resistance or armed revolution was a long way off. At first the colonists resorted to what appeared to be the only peaceful method of defense, non-importation agreements. The first of these was entered into in March, 1765, by the merchants of New York, Massachusetts, Rhode Island, and Pennsylvania. They agreed not to import any goods from Great Britain; to countermand orders already given; and to refuse to sell British goods sent

on commission, until the Stamp Act of 1765 was repealed. At the same time the people generally agreed to abstain from the use of goods which were not of domestic manufacture, and in other ways to promote domestic manufactures as far as possible.

95. Non-importation associations. — The first attempt was so successful that in 1769 a second agreement was made by the merchants and people in nine of the colonies to "boycott" English goods. Their purpose was to exert a pressure upon English exporting merchants, which would cause them to petition for the repeal of the objectionable acts, and in this they were successful. Exportations to the New England and middle colonies fell off almost two thirds; those to the southern colonies, which were economically more dependent upon England, remained almost constant. This is shown in the following table[1]:

Exported from Great Britain to	1768	1769
New England	£430,807	£223,696
New York	490,674	75,931
Pennsylvania	441,830	204,976
Northern Colonies	£1,363,311	£504,603
Maryland and Virginia	£669,422	£614,944
North and South Carolina	300,925	327,084
Georgia	56,562	58,341
Southern Colonies	£1,026,909	£1,000,369

Finally, in 1774, the first Congress unanimously resolved that after December 1 of that year "there should be no importation into British America from Great Britain or Ireland, or from any other place," of any goods, wares, or merchandise exported from Great Britain or Ireland. A further resolution was later passed "that from and after September 10, 1775, the exportation of all merchandise and every commodity whatsoever to Great Britain, Ireland, and the West Indies ought to

[1] Bishop, Hist. of Amer. Man., I, 374.

cease, unless the grievances of America are redressed before that time"; exceptions were made only of tobacco and rice to secure the adherence of Virginia and South Carolina. Twelve of the thirteen colonies adopted these resolutions and they were everywhere carried out with the strictest fidelity. From the large importations of the previous year, it was evident that the colonies were well supplied with British goods for even a lengthy "boycott." Parliament answered these resolutions by forbidding nine of the colonies to import any but British goods. But before this legislation went into effect the Revolution had begun. The non-importation agreement of the colonies, however, remained in force until April 6, 1776, having been modified the previous year to admit only the importation of munitions of war. The boycott against Great Britain was of course maintained throughout the Revolution.

96. Commerce and manufactures during the Revolution. — At the outbreak of the war the colonies were practically self-sustaining, although the interruption of foreign trade had deprived them of most of the conveniences and luxuries. Their industrial isolation during the war, as well as the demand of the army for clothing, arms, etc., gave a decided stimulus to the struggling manufactures of the colonies. Many iron works and small manufactories were called into existence, and in some cases were given special encouragement by bounties and prizes.

Upon the declaration of peace the country was flooded with British goods. In 1784 the imports from England amounted to £3,679,000, and in 1785 to about £2,308,000; while in the ten years previous to the war (1760–1770) the annual average imports had been only £1,763,000. On the other hand the exports fell off somewhat, from £1,045,000 on the average for the ten years before the war (1760–1770) to £749,000 for 1784, and £894,000 for 1785. The effect of these excessive importations upon the industries which had but just started up during the war was immediate and disastrous; as they were not firmly established, they were being forced out of existence.

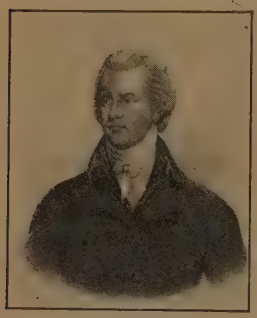
97. Efforts towards freedom of trade. — In 1776, as stated

above, the American ports were thrown open as far as possible to European trade, though British warships and privateers rendered such trade extremely hazardous. With Great Britain alone was intercourse forbidden. During this period there were no duties or restrictions upon foreign commerce with other nations in any of the American States, except Virginia. The Revolution was primarily a struggle for freedom of commerce; and consequently there was no desire to limit foreign trade. For instance, the French alliance of 1778 provided for our commercial relations on the basis of the " most perfect equality and reciprocity." After the war, accordingly, an effort was made to realize general free trade with all nations. It was believed that our trade was so important to the nations of Europe that they would consent to abolish their restrictions upon foreign trade in our favor rather than lose it. Nor was the desire for universal free trade based merely upon sentiment; it would have been commercially most profitable.

Up to this time the nation had been primarily agricultural and commercial, and there was little thought that the United States would ever become a manufacturing nation, economically self-sufficing. Consequently, freedom of trade with other nations was eagerly sought for until about 1784. Indeed, Stanwood, an ardent protectionist, believes that had the Constitution been drawn up in 1782, " it is not unlikely that it would have contained a prohibition of all laws in restraint of trade, foreign or domestic."

98. Failure of efforts. — The only countries with which Congress was able to make treaties guaranteeing reciprocal commercial privileges were Prussia and Sweden; France, Holland, Spain, and Portugal refused to accede to our overtures. An attempt was made by Jay to secure some reciprocal provision from England in the treaty of peace in 1783, but unsuccessfully. Indeed, after the defeat of Pitt's effort to secure freedom of trade between the United States and the British colonies, Parliament proceeded to exclude American vessels from the West India trade by admitting only British-built and

manned vessels to the islands, and to subject American ships in other British ports to heavy tonnage dues. The loss of the West India trade was a particularly heavy blow to the United States, for even from early colonial times it had been a most valuable branch of our commerce. Wheat, corn, and flour had been exported from the New England and middle colonies to the West Indies, with the proceeds from which, in bills of exchange, goods had been purchased from England. As the colonies had little to export directly to England, without this trade they could not have paid for their imports from that country; in 1769 the total colonial trade with the West Indies amounted to £1,537,664. The economic prosperity of a large part of the States therefore still depended directly upon the trade with the West Indies. Furthermore, even in direct trade with Great Britain American ships were permitted to carry goods produced only in the particular States of which their owners were citizens. As only one fourth of southern shipping was owned by residents of that section, this was almost equivalent to forbidding southern exports to Great Britain except in British vessels or to re-enacting the old Navigation laws.



PITT, THE YOUNGER

Second Earl of Chatham. He became premier in 1783, and attempted to carry out a liberal domestic and foreign policy. Born in 1759, died in 1806.

99. Retaliation by the States. — It seemed as if the only effective method of securing equal trading privileges from Great Britain and the other European nations would be to engage in systematic reprisals. Owing to the weakness of Congress under the Articles of Confederation such action was impossible by the central government, and, although power to levy taxes and regulate commerce was repeatedly asked for by Congress, it was never granted. Until 1789, therefore, the States undertook to regulate commerce and by retaliatory

measures to secure greater freedom. During the years 1780 to 1788 Pennsylvania enacted fifteen tariffs; Virginia, twelve; Massachusetts, New York, and Maryland, each seven; Connecticut, six; and the other States a smaller number. While those in the southern States were chiefly for the purposes of revenue, the tariffs of the middle and New England States were dictated by motives of retaliation and protection. Discriminating tonnage dues and import duties were imposed by most of the colonies upon British imports, but as the duties varied all the way from five to one hundred per cent., and some of the States admitted such goods free of duty, British goods continued to flood the country through the free or cheapest ports. It must be remembered, however, that trade with England was, as it always had been, the most profitable trade for the United States. To make matters worse, the States finally began to make commercial war upon each other.

100. Federal control of commerce. — It had now become evident that even if reprisals were desirable, it was impossible to carry them out so long as each State controlled its own action with regard to foreign commerce. Unified action could never be secured until Congress should be made supreme in foreign relations. Moreover, the mutual jealousies of the States were daily making some plan of central control more necessary. At the same time American industries had been developing and a growing desire for protection began slowly to replace the idea of retaliation. The growth of new industries, it was thought, would lessen our industrial dependence upon England, which meanwhile showed no signs of removing its commercial restrictions. By the Constitution of 1789, accordingly, the control over foreign commerce was vested solely in Congress, thus laying the foundation for a unified and splendid development. The demand for protection found some slight expression in the tariff act of the same year, but the change in economic conditions which soon occurred led to a shifting of interests and to an expansion of commerce rather than manufactures.

101. The Continental wars and neutrality. — The war which broke out between England and France in 1793, and spread until it finally involved all the nations of Europe, made American merchants, who occupied a position of neutrality throughout, the principal carriers of the trade between the warring nations and their colonies. But under the prevailing principles of international law, the rights of neutrals were but little respected. According to the Rule of War of 1756, a neutral could not enjoy in time of war a carrying-trade which was prohibited to it in time of peace. Great Britain therefore proceeded against such of our vessels as attempted to trade with the French West Indies, which had previously been closed to us. As trade with the British West Indies had been prohibited since 1783, this section was practically closed to legitimate commerce. Moreover, provisions were then considered contraband of war, and both the French and British governments ordered the capture and condemnation of neutral vessels carrying provisions to the enemy's ports.

An even more irritating claim of Great Britain was the right to impress British sailors found on American vessels for service on their men-of-war. Jay's treaty between the United States and Great Britain did not settle these difficulties, while it greatly irritated France, almost to the point of war. By the terms of the French Alliance of 1778, we had agreed to make common cause with France against Great Britain in the event of a war. That nation was greatly offended by our policy of neutrality, openly insulted our government, and was all but at open war with us from 1797 to 1800. In the year 1798 Congress declared the treaty of 1778 at an end, and we were freed from foreign entanglements.

102. The harvest from neutrality. — In spite of these embarrassments, the carrying-trade of American ship-owners showed an enormous expansion during the period from 1793 to 1801. Our total foreign trade increased from $48,000,000 in 1791 to $205,000,000 in 1801, while our exports increased from $19,000,000 to $94,000,000. There was a large and steady demand

for agricultural products for exportation to the belligerent countries, and the prices of wheat, corn, and meat were very high. The profits from the production and freight of these goods were enormous.

At the same time most of the trade between the belligerent nations and their colonial possessions was thrown into the hands of American ship-owners. The products of the French, Spanish, and Dutch East and West Indies were either carried directly to Europe or were first shipped to the United States and then re-exported. While none of the United States ports lay on the direct route between South America or the West Indies and Europe, the trade winds and Gulf Stream made the roundabout route but little longer in point of time. Furthermore, by calling at an American port, re-shipping the goods, and taking out fresh papers, the danger from English privateers was removed; drawbacks of the import duties were of course allowed on all re-exports from the United States. In 1801 over one half of our exports were re-exports. As early as 1793 the tonnage of the United States exceeded that of any other nation except England.

103. Expansion of American shipping. — The development of the carrying-trade received a temporary check during the Peace of Amiens (1802), which left France, Holland, and the other European nations free to carry on their own trade, but upon the renewal of war in 1803 our commerce again expanded until 1807, when it amounted to $247,000,000; imports, $138,500,000; exports, $108,300,000. It has been estimated that the freight earnings of American vessels amounted during this period to about $32,500,000 per annum. Under this stimulus the tonnage of American vessels engaged in foreign trade increased from 123,893 tons in 1789 to 749,341 tons in 1805; during the same time the percentage of foreign trade carried in American bottoms increased from twenty-five to ninety-one per cent. The ship-building industry also received its share of this general prosperity: between the years 1798 and 1812 over two hundred thousand tons of American-built shipping was

sold to foreigners. As Prof. H. C. Adams says, "The growth of American shipping from 1789 to 1807 is without parallel in the history of the commercial world."

104. Tonnage acts. — In the meantime Congress had passed several acts, modeled on the British Navigation acts, partly in retaliation and partly to secure the foreign trade for our own ships. By the first tariff act under the new Constitution, a rebate of ten per cent. was allowed on all imports in American vessels, while special encouragement was given to the China trade by making the duties on tea brought direct from the Orient in American ships about one half those on tea in foreign vessels or in American vessels if brought from London. This last was aimed at the monopoly of the English East India Company. By the second act of Congress (July 20, 1789) further protection was given to American shipping by the following discriminating tonnage dues:

On all American built, American owned vessels, per ton ..... 6 cents
On all American built, foreign owned vessels, per ton .....30 cents
On all other vessels, per ton .....50 cents

105. Blows at neutral trade. — The expansion of American commerce received a serious check in 1807 as a result of the various English Orders in Council and Napoleon's Berlin and Milan decrees, which were directed against the neutral trade. As we had especially profited by our position as neutrals before, so now our prosperity was most disastrously affected. The English Orders in Council of August, 1804, had declared all French ports, from Ostend to the Seine, to be in a state of blockade, which was extended by the Order of May, 1806, to all the coast from the river Elbe to Brest. While this was largely in the nature of a "paper blockade," it made neutral vessels trading with such ports liable to capture. The English government hoped in this way to deprive France of needed supplies from her colonies, and at the same time to stifle the alarming growth of the American carrying-trade. Napoleon, whom the battle of Jena had made master of the Continent, retorted with the Berlin decree of November, 1806, which

declared the British islands in a state of blockade and forbade all trade with them; further, no vessel which had touched at an English port was to be permitted to enter any port of France.

This was quickly followed by other British Orders in Council during 1807, which declared all ports belonging to France or her colonies or allies to be in a state of blockade, and stated that no neutral vessel could trade with them unless it first entered a British port, took out a British license to trade, and paid re-export duties. In answer to this, Napoleon issued the Milan decree, in December, 1807, which declared every ship sailing to or from Great Britain or her colonies to be good prize, and that every ship which submitted to the English orders was denationalized and liable to seizure. These decrees were directed against all neutral trade and were dictated by a desire not so much to harm that as to injure the antagonist who was profiting by this neutral trade. But the United States was the only neutral carrier of importance and naturally felt the full force of these decrees. Privateers were licensed by England and France and their allies, and seized many a rich prize; less was done by ships of war. About 1600 American vessels and $60,000,000 worth of property were captured by French, English, and other privateers.

106. The Embargo and Non-intercourse Acts. — As a peaceful mode of retaliation for the injuries inflicted on American shipping, a non-intercourse act had been passed by Congress, which was to go into effect in November, 1807. Before that time its operation had been postponed until December, and its repeal or non-enforcement was generally expected. Jefferson, who above all things desired peace, had also endeavored to conclude a treaty with England in 1806, but had not been able to secure a satisfactory adjustment of the matters in dispute. When, however, the news of these various indignities reached the United States, Jefferson recommended to Congress that an embargo be placed on American shipping, or, as he expressed it, " an immediate inhibition of the depar-

ture of our ships from the ports of the United States." The Embargo Act, passed December 22, prohibited American vessels leaving the ports of the United States for those of any foreign power. Such vessels might engage in the coasting trade, but in that case they must give bonds to twice the value of the ship and cargo that the cargo would be landed in the United States. Later acts placed the navy and the revenue cutters at the disposal of the executive and gave him almost despotic powers in dealing with both foreign and domestic trade.

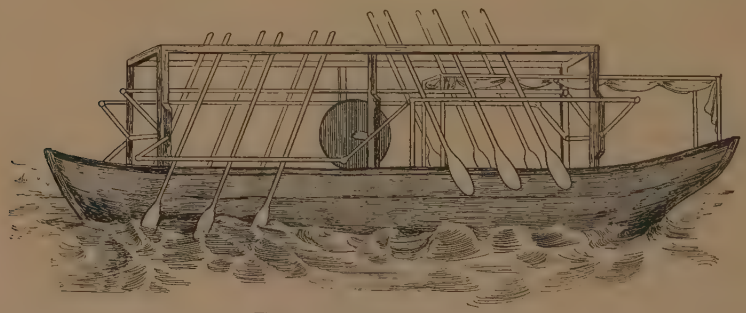
The effect of the embargo was immediate and most disastrous upon our foreign trade: in a single year our exports fell from $108,300,000 to $22,400,000. "In the large shipping towns business of every kind fell off, and soon utterly ceased. The rope walks were deserted. The sail-makers were idle. The shipwrights and draymen had scarcely anything to do. Pitch and tar, hemp and flour, bacon, salt fish, and flaxseed became drugs upon the shippers' hands. But the greatest sufferers of all were the sailors." It was estimated at the time that thirty thousand seamen were thrown out of employment and that in all one hundred thousand men were out of work for a year. The farmers, too, who had been buying land on credit and raising greater crops in expectation of the foreign demand, soon began to feel the effects, and many of them were forced into bankruptcy. Lumbermen and fishermen, and finally merchants, were ruined by the stoppage of trade with the outside world. The jails were filled with debtors, while a contemporary visitor to New York describes that city as if ravaged by pestilence, so dead was its commerce. The effects of the Embargo were most severely felt in New England and New York, where foreign commerce was greatest, but even in the South and West they were disastrous. So strong was the opposition that Jefferson finally yielded to the pressure, and fourteen months after its enactment the Embargo was repealed. In its place was substituted the Non-Intercourse Act of 1809, which removed the restrictions against trade with all countries except England and France. As a result of these acts, not merely was our commerce seri-

ously affected, but our treaty relations were strained or broken.

107. Commercial treaties. — The first commercial treaty made by the United States, even before political independence had been gained, was with our ally France. By the treaty of 1778 we were granted commercial privileges in her ports, but this was suspended in 1798, when our relations with that country became strained. During the years 1798–1800 we were practically at war with France, but in the latter year Napoleon restored friendly relations and concluded a treaty of commerce and navigation, which secured reciprocity of treatment in respect to customs duties and tonnage dues. Owing to French encroachments upon our commerce during the following years, the treaty had little practical value. Subsequent treaties were made with the Netherlands (1782), Sweden (1783), and Prussia (1785). This treaty of 1785, with Prussia, which provided for reciprocal duties and customs dues, continued in force, with slight modifications in 1799, for thirty years. Our commercial relations with Great Britain remained disturbed after the Revolution and until the conclusion of the War of 1812 secured commercial in addition to political independence. The Jay treaty of 1794 granted to British merchants greater privileges than were given to Americans, and was so unpopular that its ratification by the United States Senate was secured with difficulty. But during the Napoleonic wars commercial treaties did not suffice to protect American merchants or sailors from aggression; all treaty relations were seriously strained by the Orders in Council and the Embargo, and finally broken off by the declaration of war.

108. The invention of the steamboat. — During the period of these foreign entanglements a peaceful revolution of far greater moment was proceeding at home: this was the invention of the steamboat. As early as 1783 Oliver Evans began experimenting with the application of steam to the propulsion of wagons and boats, but not until 1804 did he successfully carry

out his plans. In that year he drove a wagon by steam through the streets of Philadelphia and then propelled his steamboat, the *Oruktor Amphibolos*, up the Schuykill by means of paddle wheels. Better claims for priority were advanced by James Rumsey and John Fitch, about the same time. Fitch began experimenting with his steamboat in 1785, and in the summer of the following year made his first trial trip on the Delaware; paddle-wheels were first used and later a system of six upright oars on each side. The astonishing speed of eight miles an hour was made. Pennsylvania granted Fitch "the sole right and advantage of making and employing the steamboat by him lately invented for a limited time," namely, fourteen



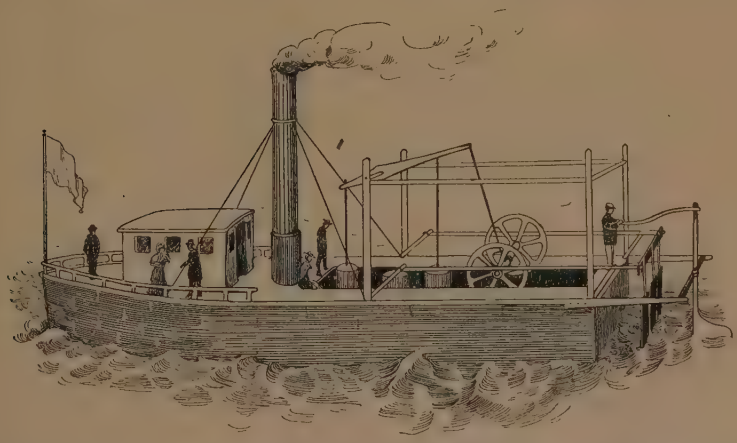
FITCH'S SECOND BOAT

The second experimental boat of John Fitch was finished in May, 1787, and was propelled by oars fastened to a frame. It ran on the Delaware and made a speed of four miles an hour.

years. A similar monopoly was granted by Delaware, New York, and Virginia. Regular trips were made during the summer of 1790, between Philadelphia, Bordentown, Trenton, and Wilmington, but were abandoned after that time, as they proved unprofitable.

Meanwhile, Rumsey had succeeded in propelling a steamboat of his own invention on the Potomac, in December, 1787. By his method water was sucked in at the bow and ejected at the stern. On the trial trip a speed of four miles an hour was attained against the current. Before the end of the cen-

tury other successful experiments had been made by Nathan Read at Salem, by Samuel Morey on the Connecticut, by William Longstreet on the Savannah, by Elijah Ornsbee at Providence, and by John Stevens on the Hudson. Defects in the engines, in the size of the wheels, and in other particulars prevented any of these inventions from becoming commercially profitable, however, and the honor of first making the steamboat a practical success was reserved for Robert

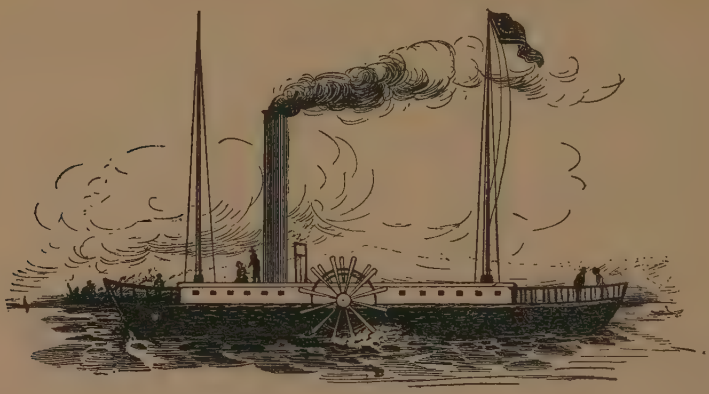


FITCH'S THIRD BOAT

Fitch's third boat was the first steamboat ever built to carry passengers. It was finished in April, 1798, and the following year was run to Burlington regularly as a passenger boat, maintaining a speed of eight miles an hour in smooth water.

Fulton. In August, 1807, he sailed the *Clermont* from New York to Albany, one hundred and fifty miles, in thirty-two hours. The vessel was one hundred and thirty feet long, and was provided with side wheels fifteen feet in diameter, with buckets four feet wide. Clumsy as the vessel was, it demonstrated the practicability of steam navigation by water, and secured for her owners, Fulton and Livingstone, a monopoly of the waters of New York State for twenty years. Steamboats now began to come into general use: the summer of 1809

saw one on Lake Champlain, another on the Raritan, and a third on the Delaware. Two years later the steamboat was



FULTON'S CLERMONT

When the Clermont started on her epoch-making trip up the Hudson in August, 1807, sceptical crowds lined the shore to see "Fulton's Folly." Fulton himself wrote: "The morning I left New York there were not perhaps thirty persons in the city who believed that the boat would even move one mile per hour, or be of the least utility." The trip of 150 miles from New York to Albany was made in 32 hours. While the speed was slow, the practicability of the steamboat had been successfully demonstrated, and a new era in water transportation introduced.

introduced on the Ohio, and the era of steam as applied to transportation had fairly begun.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER VIII

1. What clauses of the Constitution give Congress the right to regulate commerce with other nations?

2. Why does the Neutrality Proclamation mark an epoch in the history of the United States? [McMaster, II, 89; Schouler, I, 245; Hart, Hist. told by Contemp., III, 305–7.]

3. What rights had a neutral nation in 1800? What to-day? [Channing, The Jeffersonian System, chap. 15; Encycl. Brit., art. International Law, last part.]

4. Were non-importation associations a good method of protest? [Coman, 94–103; Howard, Preliminaries of the Revol., see Index.]

5. Why did the Sugar Act of 1764 especially effect New England? [Coman, 90.]

6. Was the Stamp Act unfair? What are the advantages and disadvantages of a stamp duty? Do we have such taxes to-day? [Fiske, Rev., I, 14–27; Howard, Prelim. of Rev., chaps. 7, 8; Johnson, Great Events, XIII, 299–301; Plehn, Intro. to Pub. Fin., 262.]

7. Why did the efforts of the United States to secure freedom of trade with other nations fail? [Marvin, chap. 3; Coman, 110–112; Stanwood, Tariff Controversies, I, chap. 2.]

8. Who were engaged in the Continental wars, and how long did they last? [Fisher, Outlines of Univ. Hist., III, 515–543; Robinson, Hist. of Western Europe, 593–624.]

9. Were there any other important neutral nations than the United States at this time?

10. Describe the treatment of American ships and sailors by England and France. [McMaster, III, 200; Schouler, II, 133; Hart, Hist. told by Contemp., III, chap. 18.]

11. Was the embargo constitutional? Was it wise? What effect did it have on the economic development of New England? [McMaster, III, 412; Marvin, chap. 7; Coman, 173–175.]

12. What were the English Orders in Council and Napoleon's Berlin and Milan decrees? [Walker, Making of the Nation, 195–7; McMaster, III, 412–417; Fisher, Univ. Hist., 527; Coman, 172.]

13. What was the "industrial revolution" in England? [Toynbee, Ind. Rev. in Engl.; Warner, Landmarks, 262–300; Cheyney, Introduction, 199–239; Price, chap. 9; Seager, Intro. to Econ., 12; Chapman, The Lancashire Cotton Industry, chaps. 2, 4.]

14. Were privateers valuable in aiding us to obtain our independence? Are they used in modern warfare? Why? [Marvin, 12–18; Schuyler, Amer. Dipl. and Com., 371–403; Foster, Cent. of Amer. Dipl., 93.]

15. Why did not Fitch's or Rumsey's or Owen's steamboats succeed? [Bishop I, 76–77; Coman, 146–8; McMaster, I, 435, III, 487.]

16. Was the embargo necessary or desirable? [Channing, The Jeffersonian System; Walker, Making of the Nation, chap. 10; McMaster, III, chaps. 18, 19, 21.

17. Describe our early trade with China. [Foster, Amer. Dipl. in the Orient, chap. 2; Schuyler, Amer. Dipl., 292.]

SELECTED REFERENCES. CHAPTER VIII

**Channing: The Jeffersonian System, chaps. 15, 16.
**Hill: The First Stages of the Tariff Policy of the United States, 75–142.
*McMaster: History of the People of the United States, II, 220–235, 276–307, 412–417.

**Marvin: The American Merchant Marine, chaps. 3–7.
*Pitkin: Statistical View of the United States, chaps. 5, 8, 9.
**Taussig: Tariff History of the United States, chap. 2.

Coman: Industrial History of the United States, 171–179.
—— Eighty Years' Progress, 132–170.
Fiske: The Critical Period, 134–148.
Hart: History told by Contemporaries, III, chaps. 8, 18.
Hildreth: History of the United States, II, 532–559.
Stanwood: American Tariff Controversies in the Nineteenth Century, I, chaps. 1–5.

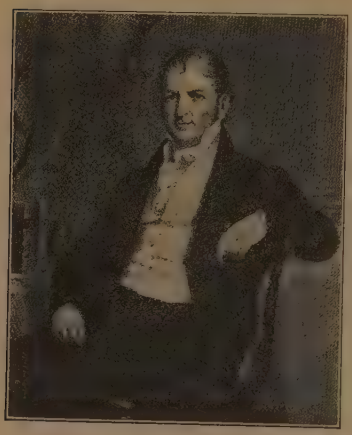
CHAPTER IX

COTTON AND SLAVERY. AGRICULTURE

109. The introduction of cotton culture. — Up to the time of the Revolution the culture of cotton had remained practically undeveloped. Other crops, such as tobacco in Virginia, rice in South Carolina, and pitch and tar in North Carolina, had proven more profitable. Under the English colonial system, moreover, cotton manufacture was forbidden in North America, while the export of raw cotton was discouraged; both the domestic and foreign markets were thus cut off. Even more important was the difficulty and expensiveness of cleaning the fiber from seed and impurities. A man could clean by hand only five or six pounds a day, which made the cost of cotton goods prohibitive for general use.

With the outbreak of the Revolution and the consequent demand for garments, together with the removal of colonial restrictions and the encouragement to manufactures, considerable stimulus was given to cotton production. The success of the sea-island or long-staple cotton, which was first introduced into Georgia in 1786, led to the development of the short-staple or "upland" cotton on the interior lands. By 1789 the production of both varieties was estimated by Woodbury at 1,000,000 lbs.; in 1790, at 1,500,000 lbs.; and in 1791 at 2,000,000 lbs. Of this South Carolina produced three fourths and Georgia the remainder. At the same time, the improvements in cotton machinery in England had created a vastly increased market for raw cotton, the number of persons engaged in the spinning and weaving of cotton having increased from 7900 in 1760 to 320,000 in 1787.

110. Whitney's cotton-gin. — The way was now open for the rapid development of cotton culture in the South; the only obstacle was the difficulty of cleaning the fiber. In 1792 Eli Whitney, a Connecticut school-teacher, while visiting in Georgia, had his attention directed to the need of a machine for doing this work, and in April, 1793, succeeded in perfecting a cotton-gin by which the lint was picked from the seed by means of saw-teeth on a revolving wheel. By this machine one thousand pounds of cotton could be cleaned by one person in a day, and immediately the demand for it spread throughout the entire cotton region. Mr. Whitney and the partner he associated with him, Mr. Miller, made the mistake of endeavoring to monopolize the production and sale of the gins, but the planters would not wait for such a valuable invention to be supplied so slowly, and soon invaded his patents. The State of South Carolina granted him $50,000 to secure the privilege of the gin for her citizens, and North Carolina about $12,000, most of which was soon spent in wasteful lawsuits.



ELI WHITNEY

Whitney was born in Massachusetts in 1765 and graduated from Yale college in 1792. He then went to Georgia as a teacher and while there was asked by the neighbors, because of his known ingenuity, to make a machine for them that would clean the seed from the cotton, which at that time was done by hand. His efforts resulted in the cotton-gin, the most important machine ever invented in the United States. His patents were invaded and he made nothing from this invention, though later he acquired a fortune from the invention of firearms.

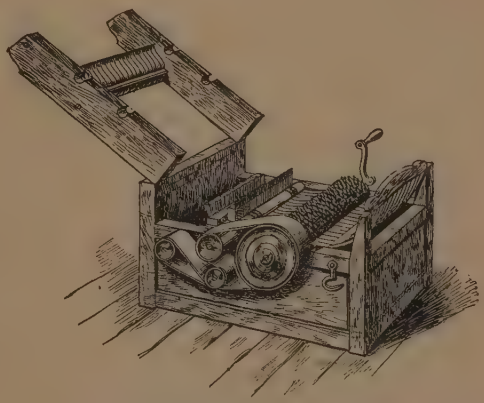
After the invention of the cotton-gin, American cotton, which had been dirty and poorly picked up to this time, became a popular and marketable commodity. The production and

export increased by leaps and bounds, as will be seen from the appended table.

PRODUCTION AND EXPORTS OF COTTON

Year	Production in United States (in lbs.)	Exports from United States (in lbs.)	Price per lb. (in cents)
1790	1,500,000	—	14½
1795	8,000,000	6,276,300	36½
1800	35,000,000	17,789,803	28
1805	70,000,000	38,390,087	23
1807	80,000,000	63,944,459	21½
1808	75,000,000	10,630,445	19

So rapid indeed was the development of this new industry that when Jay negotiated the treaty with Great Britain in 1794 he apparently did not know that cotton was raised for exportation in the United States; he accordingly admitted it among the articles not to be exported from the United States in American bottoms. The Senate, however, did not agree to this provision.



WHITNEY'S COTTON GIN

Until Whitney's invention the seeds had been removed from the cotton either by hand or by the roller mill. Now the cotton was forced by toothed cylinders through wire ribs, which separated the seeds from the lint. In a day a slave could clean by hand 5, by the roller mill 65, and by the cotton-gin 300 pounds of cotton.

111. Effect of cotton culture on slavery.—With the first development of cotton-growing, white labor was resorted to and was expected to prove adequate. The

scarcity of such labor in the South, however, necessitated an early recourse to the use of slaves. The large slave-holders, too, eagerly seized the opportunity afforded by a new crop to employ their slaves in its production, for the former staple southern crops — indigo and rice — were declining in importance. As soon as the culture of cotton was undertaken by slaves on an extended scale, the social odium attaching to manual labor by a white man diminished still more the supply of free labor, and made cotton from that time on essentially a slave product. The same causes operated to repel immigrants from the southern cotton-fields, and made the South more and more dependent upon slave labor as the production of cotton became more important. Among the whites there was no class from which the necessary labor supply could have been drawn; the large landed proprietors and their children seldom engaged in manual labor, while the lower classes of whites were as a rule thriftless and improvident.

It has been frequently asserted by southern writers that the success of cotton culture depended upon the existence of a supply of slave labor, and that the two were indissolubly connected. While the introduction of slave labor into the United States had, as we have seen, no connection with the production of cotton, it is true that the development of cotton culture at this time gave new life to a decaying institution and furnished it with an economic reason for existence during the next half-century.

112. Decline of slavery. — After the Revolution, slavery declined, not only in the North, where it was completely abolished by 1804, but in the South also. Except on the rice and indigo plantations of the Carolinas and Georgia the economic disadvantages of slave labor were so apparent that many prominent Southerners favored its early abolition. By 1796, Virginia, South Carolina, Georgia, North Carolina, and Maryland, of the southern States, had all forbidden the importation of slaves. Indeed, so far had the movement toward the extinction of slavery proceeded by 1794, that Tench Coxe was

able to write in that year: "The separate American states (with one small exception) have abolished the slave-trade, and they have in some instances abolished negro slavery; in others they have adopted efficacious measures for its certain but gradual abolition. The importation of slaves is discontinued, and can never be renewed so as to interrupt the peace of Africa, or endanger the tranquillity of the United States." Even from Georgia came the statement by a representative in the fifth Congress: "Not a man in Georgia but wishes there were no slaves; they are a curse to the country." The fall in the price of slaves was a further evidence of the growing unprofitableness of slavery: in 1790, the best hands could be bought for two hundred dollars each.

The following quotation from the journal of Philip Fithian, a Princeton student and tutor to a rich family in Virginia in 1774, gives an enlightened view of slave labor on a great plantation during this period: "After supper I had a long conversation with Mrs. Carter concerning Negroes in Virginia, and find she esteems their value at no higher rate than I do. We both concluded (I am pretty certain that the conclusion is just) that if in Mr. Carter's, or in any Gentleman's estate, all the Negroes should be sold, and the money put to interest in safe hands, and let the lands which these Negroes now work lie wholly uncultivated, the bare interest of the price of the Negroes would be a much greater yearly income than what is now received from their working the Lands, making no allowance at all for the risk of the Masters as to the crops, and Negroes." It is probable that, but for the invention of the cotton-gin and the consequent extension of cotton production, slavery would gradually have declined and disappeared through voluntary action.

113. Extension of cotton culture. — The movement toward abolition of slavery received a fatal check as soon as the cultivation of cotton was shown to be profitable in the South. The demand for slaves increased with the extension of cotton culture, and "side by side slavery and cotton pushed westward

into the 'back country' of the Carolinas, across the pine hills and prairies of Georgia and Alabama, took complete possession of the alluvial lands along the Mississippi and Red rivers, and by 1860 were laying claim to the great central region of Texas." At the beginning, in 1791, South Carolina and Georgia were the only important cotton producing States. By 1801, Virginia, North Carolina, and Tennessee produced a scant quarter, and ten years later Louisiana added a little to the total production, but South Carolina and Georgia still produced three fourths of the cotton grown in the United States.

The rapid rise in the price of cotton during this period greatly stimulated its production: from 14½ cents a pound in 1790 the price steadily rose to 44 cents in 1799, owing to the increasing demand in England and at home; after this it declined to 19 cents in 1802, at about which point it remained for the next six years. The stimulus thus given to the extension of cotton culture may be judged when these prices are compared with the estimate of Woodbury that where lands and labor were low, 2 cents a pound for cotton in the seed, or 8 cents when cleaned, would pay expenses. The production of cotton consequently increased from two million pounds in 1791 to forty-eight millions in 1801, and to eighty millions in 1807, while the exports rose from less than two hundred thousand pounds to twenty-one million and sixty-four million pounds respectively, for the same dates.

114. Growth of the slave-trade. — The increased demand for slaves to be used as hands in the cotton-fields led at first to an extension of the slave-trade and to fresh importations from Africa. Although the separate States had forbidden the traffic, the profits were so enormous as to encourage the growth of a vast illicit business. Finally, in December, 1803, South Carolina, influenced no doubt by the great gains to be secured, repealed all prohibitory laws and threw open her ports to the slave-trade. Charleston became the most important slave-mart in the United States, and grew rapidly in wealth and

importance; in size it was the fourth largest city and seemed destined for a brilliant future. New England traders carried on a large share of the traffic, and slave-ships were fitted out in Boston and New York; the voyages were usually made under the flag of a foreign nation. From 1804 to 1807 inclusive two hundred and two cargoes of negro slaves were taken into Charleston; of these, 8,488 were sold for account of persons living in Rhode Island, Massachusetts, and Connecticut. In the latter year the constitutional restriction upon Federal interference expired, and on March 2, 1807, Congress by law

DECK PLAN OF A SLAVE SHIP

The men on a slaver were ironed in pairs by the ankles, and men and women were compelled to lie down on their backs on the deck with their feet outward, the irons on the men being usually fastened to the deck. The space "between decks" where they were confined was about 3 feet 10 inches high, and packed so close that a space of only 5 feet long and 16 inches wide was allotted to each slave. In these quarters they remained while the human cargo was being collected (3 to 6 months) and during the passage across the Atlantic (6 to 10 weeks). In a tropical climate and under these conditions the mortality was frightful.

prohibited the importation of slaves. The act was disregarded, however, as the punishment was insufficient — illegally imported slaves if captured were sold for the benefit of the State into which they were being brought — and a considerable illicit trade continued. Not until 1820 was the traffic made piracy, the penalty for which was death.

After the prohibition of the slave-trade, the demand for slaves by the cotton planters was met by breeding rather than by importation. The border States developed this new industry and thus shared in the prosperity of the cotton regions. The

restriction of importation likewise increased the price of slaves, which by 1815 was two hundred and fifty dollars a head.

115. Agriculture in the South. — The agricultural methods employed in this period were those which had come down from colonial days and were a wasteful kind of extensive agriculture. The land was cleared for cotton, as it had been for tobacco and corn, by girdling the trees and then burning them as they decayed and fell. Before the fields were ready for cotton a few crops of Indian corn or wheat would often be gathered. The ground was prepared and cultivated in a very primitive fashion, but few agricultural implements being used and those only of the rudest and strongest kind, such as even the most careless slave could not break. Fertilizers were but rarely used, not even the cotton seeds being returned to the soil, while rotation of crops was unknown.

Although cotton is said to be the least exhaustive to the soil of the great staple crops of America, such methods rapidly wore out the land. "Agriculture in the South," said John Taylor of Carolina, "does not consist so much in cultivating land as in killing it." The land was used until exhausted and then deserted for a fresh piece. Owing to the ease of moving his slaves, which constituted the greater part of his capital, the planter was ever ready to move on. It is evident that such a one-crop system required unlimited quantities of land, and this fact explains the steady westward movement of cotton culture for the next fifty years. How far the use of slave labor was responsible for the wasteful character of agriculture in the cotton regions it is impossible to say, but the relation between the two was intimate and southern agriculture showed no improvement until after the Civil War.

116. Agriculture in the North. — Little progress was made in agriculture until after the Revolution; this event directly and indirectly brought about changes which materially affected American industry. Most of the effort of the farmers was still necessarily devoted to enlarging the cultivated area of their farms — clearing the ground, and removing timber and stones.

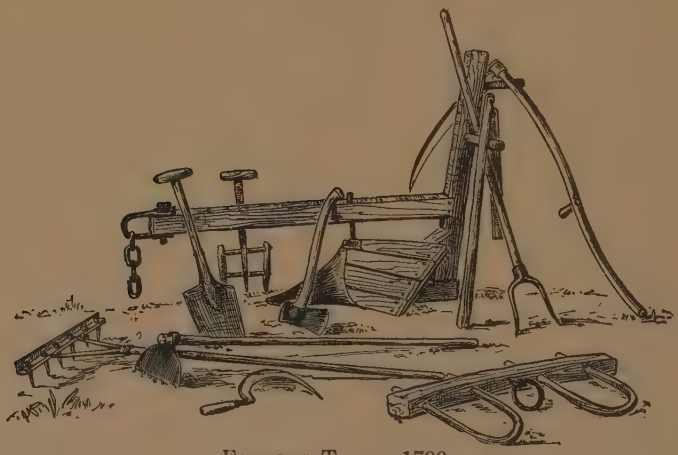
So long as no available market existed for surplus products, a suitable stimulus was lacking to secure improvement in existing methods. Nor was the mass of the farmers of that time especially enterprising or well educated. Strange as such a complaint sounds to us, foreign travelers in the United States in the last quarter of the eighteenth century are nearly unanimous in describing the idling and lounging of the people, which they seem to have considered a national vice.[1] Such a view, however, was on the whole superficial.

After the Revolution, the greater political freedom of the individual and the removal of restrictions upon foreign trade, together with the increased demand for our products during the continental wars abroad, greatly stimulated the interest in agriculture. The formation of societies for the promotion of agriculture was also an important step, for they awakened inquiry and intellectual activity and paved the way for agricultural literature. Five such societies were organized between 1785 and 1794 at Charleston, Philadelphia, New York, Massachusetts, and Connecticut. In 1776 less than forty newspapers were published in the country, none of them agricultural; but these societies published books, pamphlets, and papers, and thus prepared the way for the agricultural periodical and newspaper, which began early in the nineteenth century. By their meetings and publications the agricultural societies also secured a diffusion of the knowledge which had been acquired in the separate colonies and made repeated trials of the same thing less necessary; they also extended the use of improved implements and labor-saving machines.

117. Farm implements. — With the exception of plowing and harrowing, practically all farm operations at the end of the eighteenth century were performed by manual labor with the aid of very rude and relatively inefficient tools. In the first census only one manufactory of agricultural implements was mentioned, a small establishment in Massachusetts which made annually 1100 rakes, valued at $1870; even as late as 1820

[1] H. Adams, Hist. of the U. S., vol. I, p. 56.

only a few small factories of plows, scythes, axes, shovels, hoes, etc., were enumerated. The plow at the time of the Revolution was of essentially the same form as that of the ancients, with wooden mold-board and clumsy frame. The first patent for a cast-iron plow in the United States was granted in 1797 to Charles Newbold of New Jersey, who, after spending, as he alleged, $30,000 in trying to get it into use, abandoned the attempt, the farmers declaring that iron plows poisoned the



FARMING TOOLS, 1790

This meager list represents practically all the agricultural implements used by American farmers at the end of the eighteenth century. Notice the clumsy plow, with wrought-iron share, wooden mold-board, and heavy beam and handles; the wooden rake and fork; the primitive scythe, sickle and flail. Great manual strength was necessary to use these tools, and the work was most exhausting.

soil and prevented the growth of crops. The first really great improvement in the plow was the result of studies made by Thomas Jefferson on the shape of the mold-board. The introduction of the cast-iron plow into general use, which was complete by 1825, marked an era in American agriculture, and led directly to many other improvements.

Two other important agricultural machines which were introduced during this period were the grain-cradle for cutting

the crop, the first patent for which was issued in 1803, and the fanning-mill for cleaning it after it was threshed, which soon superseded the old hand-fan. A beginning was also made in the application of chemistry to agriculture, but the development of a science of agriculture did not take place until after 1840.

118. Agricultural products. — The agriculture of the period under discussion was for the most part simply self-sufficing, though of some articles there was an exportable surplus. Of these tobacco was the most important until 1803, when it was passed by cotton, which thereafter constituted about one third of our agricultural exports. In New England hay was the most important single crop. The production of grains and live stock was greatly increased by the rapid settlement of the Ohio valley; the population of Kentucky, Tennessee, Ohio, Indiana, and Illinois increased in the decade ending with 1810 from about 300,000 to 935,800. Most of the increase in foodstuffs was, however, consumed at home by the growing population. The total production cannot be stated, but there was, in addition to tobacco and cotton, a considerable export of wheat and flour, rice, Indian corn and meal; beef, pork, tallow, hams, butter and cheese, lard, live cattle, and horses. The value of the exports from 1802 on, when statistics were first collected, is shown in the table on page 126. It should be remembered, however, that owing to the Napoleonic wars abroad, the exports during these years were abnormally large; during the Embargo and the War of 1812 they declined greatly.

A characteristic of the early years of the century was the concentration of farming upon the cultivation of the more profitable crops, and the elimination of many which had long been under experiment. In New England and the middle States attempts were still being made to grow lucerne, vetches, rape, spelt, spurry, poppies, madder, woad, and similar crops, but the discussions initiated by the agricultural societies showed most of them to be unprofitable and their culture was now finally discontinued.

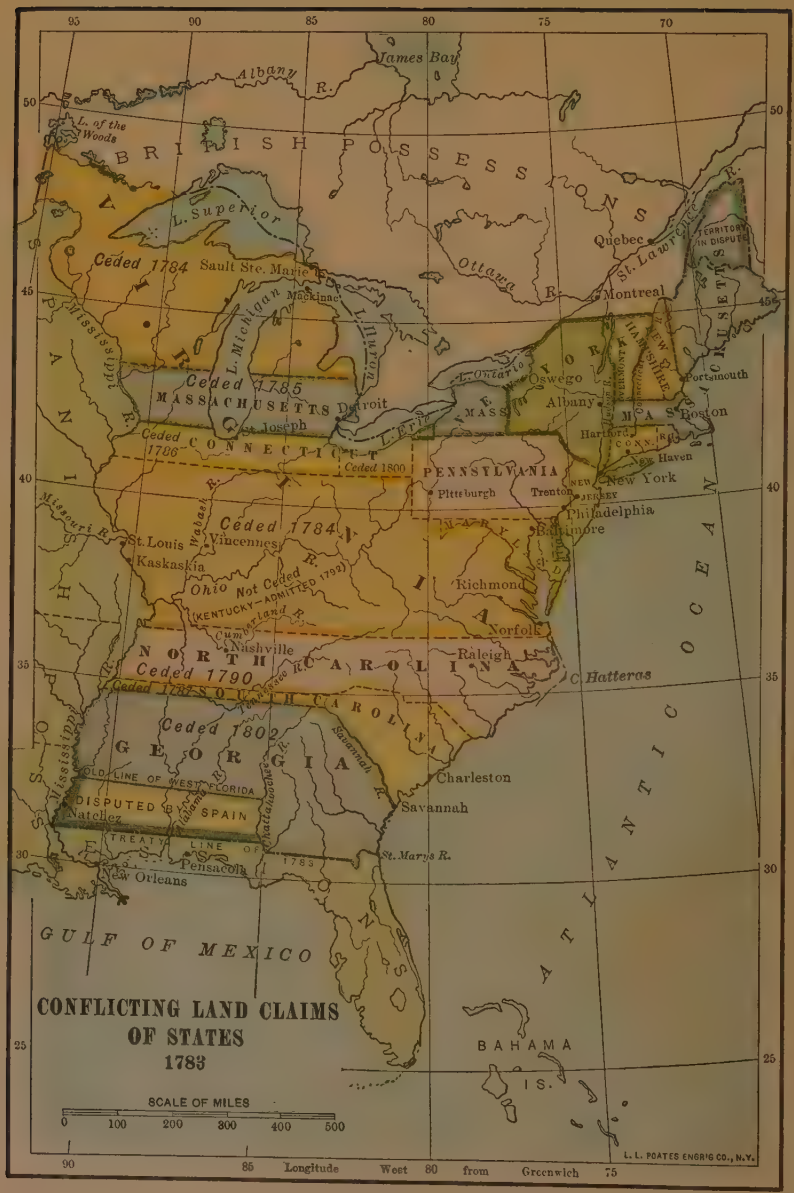
119. Causes of agricultural progress. — In addition to the

conditions already named, President F. A. Walker mentions [1] three other causes which he thinks are responsible for our great progress and pre-eminence in agriculture since the colonial days. First, the vast breadth of virgin lands, which required only the cultivation of the best soils. Second, the popular tenure of the land and excellent laws for the registration of titles and transfer of real property. Third, the fact that the agricultural class, unlike the body of cultivators in almost every country in Europe, had never constituted a peasantry, in any proper sense of that term. "The men who tilled the soil here were the same kind of men, precisely, as those who filled the professions or engaged in commercial or mechanical pursuits. . . . This state of things made American to differ from European agriculture by a wide interval. There was then no other country in the world . . . where equal mental activity and alertness have been applied to the soil as to trade and industry. But even more than the total effect of the fortunate conditions which have been indicated, American agriculture in those days owed its really remarkable power to a special, almost a technical, quality of our people, namely, mechanical insight and invention."

VALUE OF AGRICULTURAL EXPORTS

Year	Vegetable Products other than Tobacco and Cotton	Animal Products	Tobacco	Cotton
1802 . . .	$12,790,000	—	$6,220,000	$5,250,000
1803 . . .	14,080,000	$4,135,000	6,209,000	7,920,000
1804 . . .	12,250,000	4,300,000	6,000,000	7,650,000
1805 . . .	11,752,000	4,141,000	6,341,000	9,445,000
1806 . . .	11,850,000	3,274,000	6,572,000	8,332,000
1807 . . .	14,432,000	3,086,000	5,476,000	14,232,000
1808 . . .	2,550,000	968,000	26,000	2,221,000

[1] The Making of the Nation, p. 66.


CONFLICTING LAND CLAIMS
OF STATES
1783
SCALE OF MILES
0 100 200 300 400 500
Longitude West from Greenwich
BRITISH POSSESSIONS
Ceded 1784
Ceded 1785
Ceded 1786
Ceded 1800
Ceded 1784
Ceded 1790
Ceded 1802
Not Ceded
(KENTUCKY—ADMITTED 1792)
OLD LINE OF WEST FLORIDA
DISPUTED BY SPAIN
TREATY LINE OF 1783
MASSACHUSETTS
CONNECTICUT
PENNSYLVANIA
NEW YORK
NEW JERSEY
MARYLAND
VIRGINIA
NORTH CAROLINA
SOUTH CAROLINA
GEORGIA
TERRITORY IN DISPUTE
BAHAMA IS.
GULF OF MEXICO
ATLANTIC OCEAN
L. L. POATES ENGRG CO., N.Y.

120. Public lands and early land policy. — At the close of the Revolution the lands between the Alleghanies and the Mississippi River, which were ceded by England in the treaty of Ghent, were claimed by seven of the original States. Their claims, based upon colonial grants, were confused and often conflicting, and led to dissensions, especially with the landless States. Owing chiefly to the insistence of Maryland, the States finally agreed to cede their rights to the western lands to the central government, and by 1802 the United States, which did not own a single acre of land in 1781, was in possession of an immense public domain of 333,108 square miles. Since that time it has been increased by annexation and purchase, and at the same time reduced by sale and gift.

In the disposal of the public land two distinct policies have been pursued by the United States. According to the first, which continued from about 1784 to 1820, it was held that the lands should be used and sold for the sake of revenue and to pay off the public debt. Under the second, which has obtained from 1820 to the present time, the western lands were to be disposed of — sold or given away — to settlers and others for the sake of developing the country. As a rapid disposal of the public lands and immediate revenue were desired at first, it was provided in 1785 that land should be sold only in large quantities; 640 acres was the minimum amount one person could purchase. Under this act a few large sales were made, all in the present State of Ohio, amounting by 1800 to 1,484,087 acres, or less than 100,000 acres a year. The effect was to concentrate the holdings in the hands of a few large speculators or proprietors rather than in the possession of actual settlers, and this policy was accordingly modified in 1800.

121. Sales on credit. — The act of May, 1800, and subsequent acts permitted the sale of land in minimum tracts of 160 and 320 acres, on credit, at the fixed price of $2 an acre. Under the influence of the credit provision, by which only one fourth of the purchase money had to be paid down, the rest falling due in three annual instalments, large sales were

made, amounting in the next twenty years to about 18,000,000 acres. Many of the purchasers were speculators and many were settlers who had assumed obligations beyond their ability to fulfil, especially during the hard times from 1808 to 1815. After that year the great rise in the price of cotton to 26 and 34 cents a pound led to still greater speculation in western lands, amounting to over five and a half million acres in the single year 1819. The fall in the price of cotton the following year and other causes led to another crash, and the arrears to the government for land sales grew to $21,213,350. Numerous relief acts had already been passed upon the demand of impecunious debtors, but in 1820 the matter was finally adjusted by allowing those indebted to the government to secure the proportion of land already paid for by relinquishing the remainder to the United States. About 2,500,000 acres reverted to the government under these acts.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER IX

1. To what extent had cotton been produced throughout the world before the introduction of the cotton-gin? [Encycl. Brit., art. Cotton.]

2. Describe Whitney's cotton-gin, previous attempts, and his subsequent treatment. Do you think he was treated fairly? [Pitkin, Stat. View, 109; Hammond, Cotton Culture, 25–31; Bishop, Hist. of Amer. Manuf., II, 101; Johnson, Great Events, XIII, 341–6, XIV, 271–294; Encycl.]

3. Has any other product ever exerted such an effect on the development of any country as cotton on that of the United States?

4. What progress had been made toward emancipation and abolition of slavery prior to 1793? [DuBois, Suppression of African Slave-trade, chaps. 2–5; Coman, 116–120, 255; Ingle, Southern Side-lights, chap. 8; Livermore, Opinions of the Founders, 20–24, 36–44.]

5. Where were most of the slaves to be found in 1790? How were they treated? [As under question 4.]

6. Was the North interested in the maintenance of slavery, and if so in what way?

7. What was the provision in the Constitution prohibiting Congress from suppressing the slave-trade prior to 1807? Why was it inserted?

8. Describe the slave-trade as it existed before its prohibition by Congress in 1807. [DuBois, Suppression of African Slave-Trade; Spear, The African Slave-Trade; McMaster, II, 15.]

9. Why did the population increase so much more rapidly in the free States than in the slave States?

10. What were the economic and social characteristics of the North and South at this time? [H. Adams, Hist. of U. S., II, chaps. 1, 2; McMaster, I, 17; II, 4–16.]

11. Give a picture of farming in New England at this time. [Dwight, Travels in New England and New York; Eighty Years' Progress, 27.]

12. What were the principal products of the United States during this period, and where raised? [Pitkin, Stat. View, chap. 4.]

13. What influence did the growth of agricultural societies have on the development of agriculture? [Eighth census (1860), vol. Agric., 13; Rep. of U. S. Com'r. of Agric., *1872*, 282; Rep. of Conn. Bd. of Agric., *1880*, 98.]

SELECTED REFERENCES. CHAPTER IX

*Bassett: The Federalist System, chaps. 12, 13.
*Brewer: History of Agriculture, in Tenth Census (1880), vol. Agriculture.
*De Bow: Industrial Resources of the South and Southwest, I, 122, 209, 237.
**Du Bois: Suppression of the African Slave-Trade.
**Hammond: The Cotton Industry, chaps. 1–3.
*Woodbury: Report on the Cultivation, Manufacture, and Foreign Trade of Cotton.

Bishop: History of American Manufactures, I, 356.
Channing: The Jeffersonian System, chaps. 7, 8.
Hart: American History told by Contemporaries, III, chaps. 5, 7.
Hildreth: Despotism in America, chap. 3.
Russell, R.: North America, chaps. 8–10.
Weston: Progress of Slavery, chaps. 1–4.

CHAPTER X

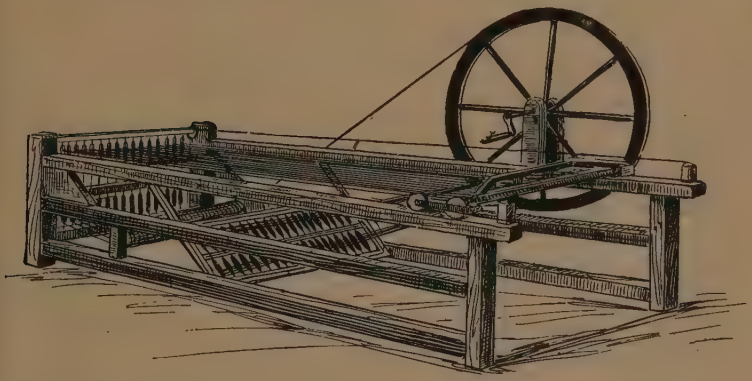
INTRODUCTION OF MANUFACTURES

122. Manufactures during the Revolution. — The course of industrial development was but little influenced by the events which immediately preceded and led up to the Revolution. The spirit of antagonism to the English colonial legislation and the desire to lessen our industrial dependence upon Great Britain had indeed somewhat curtailed the importation of luxuries two or three times before the outbreak of hostilities. With the closing of the port of Boston, the first Congress passed the only aggressive act of that body — a resolution calling upon the several colonies to pass non-importation agreements and binding themselves and their constituents to abide by them. During the Revolution the manufacture of various articles was greatly stimulated by the necessities of the war, by the interruption of foreign commerce, and by the high prices of a paper money régime. Especially was this true of the iron industry, of textiles, and of other articles of necessity.

Upon the return of peace, these infant industries quickly languished, as they could not compete with the flood of cheap manufactures which were poured into the country by Great Britain. Political independence had been achieved, but industrially the United States were as dependent upon Great Britain as they had been while colonies. They continued to import most of their manufactured commodities from England and to devote themselves as before to agriculture and commerce. English manufacturers at this time possessed a monopoly of the new machinery which was revolutionizing the textile industry, and by securing the prohibition of its expor-

tation prevented the growth of manufacturing in the United States, as they had previously done by the Navigation Acts.

123. The industrial revolution in England. — Beginning with about 1760 a remarkable series of inventions, especially in textile manufacturing, had completely revolutionized English industry. These inventions consisted of the application of machinery to spinning and weaving. Before 1764 all yarn



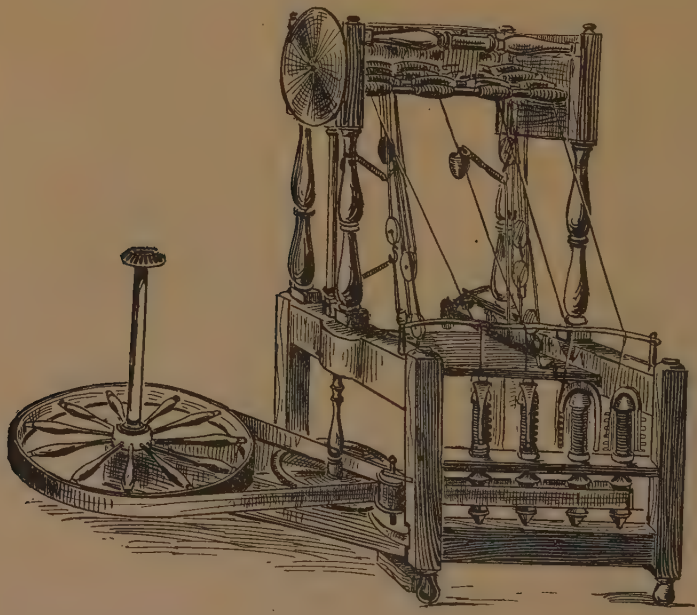
HARGREAVE'S SPINNING JENNY

James Hargreaves, an illiterate weaver of Lancashire, had the idea of his spinning jenny suggested to him by seeing an overturned spinning-wheel continue its motion while it lay on the ground. Acting on this idea, in 1767 he constructed a rude machine of eight spindles, turned by a band from a horizontal wheel. In honor of his wife he named it the "Spinning Jenny." The machine was later improved so as to work eighty spindles. Hargreaves's invention occasioned great alarm among the spinners, who broke into his house and destroyed his machine.

used in the manufactures of textiles of all kinds was spun in single threads upon the domestic spinning-wheel, while the weaving was done upon the hand-loom. Clumsy as was this instrument, it could weave cloth faster than the yarn could be produced, but between 1764 and 1780 spinning machinery was perfected by Hargreaves, Arkwright, and Crompton, by which it was made possible to spin several thousand threads at once. The yarn could now be spun more rapidly than it

could be woven, but in 1785 Cartwright invented a power-loom, and the textile machinery was practically complete.

Up to this time textile mills had been located upon streams of water, from which power was obtained; the application of

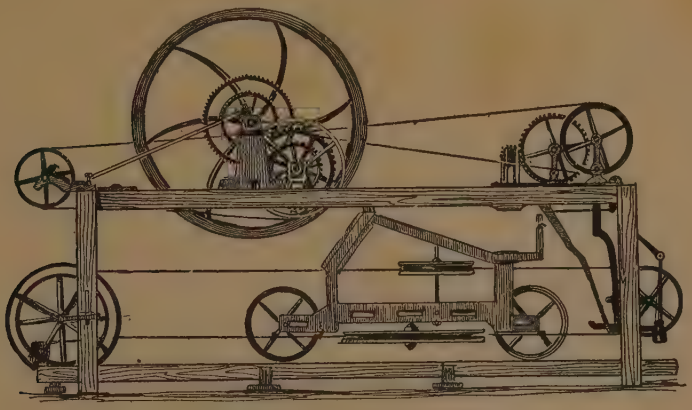


ARKWRIGHT'S FIRST SPINNING FRAME

Richard Arkwright improved upon the process of Hargreaves's jenny, by inventing a machine which spun a much stronger thread. By this method the carded material was carried through successive pairs of rollers, each pair revolving more rapidly than the last, thus drawing out the roving to the requisite fineness. This machine produced a stronger and harder yarn than was made by the jenny. Arkwright invented other machines which made possible the rapid spinning of a number of threads at the same time, and acquired a large fortune.

the steam-engine, which had already been used for draining mines and raising coal to the surface, as the motive power to drive the new machinery made it possible to locate mills near the larger centers of population. The use of the steam-engine

in mining also stimulated the iron industry, which could now secure its supplies of fuel more cheaply.



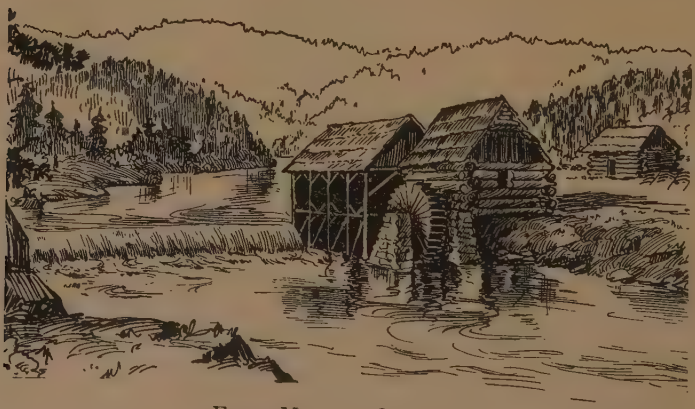
CROMPTON'S SPINNING MULE

The inventions of Hargreaves and Arkwright were combined in 1779 by Samuel Crompton in a single machine, which was called the "mule" on account of its hybrid origin. He noticed that the roller process spun the stronger thread but that the jenny was more rapid. In his machine the rovings were delivered from the rollers to spindles placed on a carriage which traveled away from the rollers while the thread was being twisted, thus stretching it out, and returned toward the rollers while the thread was being wound. Thus drawing, stretching, and twisting were performed at one operation. As this machine was not patented it soon came into general use, but the inventor received very little for it.

124. England and the exportation of machinery. — Through the possession of these machines, England controlled the manufacture of cotton and woolen goods, for without them no country could hope to compete successfully with her. Parliament jealously guarded this monopoly and passed stringent laws prohibiting the exportation of machines, plans, or models. In 1774 the exportation of any tools used in the cotton or linen manufacture was made punishable by a fine of £200; this statute was extended in 1781 to woolen and silk manufactures, and imprisonment for twelve months was added to the penalty. In the following year the exportation of machinery used in printing cotton goods was forbidden under a

fine of £500; this prohibition was also made to apply to tools used in the iron and steel industry. Seducing English operatives to emigrate was also severely punished. By these means, which were simply the application of mercantilist principles, Parliament hoped to secure to England the entire gain from the newly invented machinery and to make her the manufacturing nation of the world.

125. The introduction of machinery into the United States and attempts at manufacturing. — As a result of these obstacles



FIRST MILL IN OHIO

This was the Wolf Creek Mill, built in 1789, about a mile above its junction with the Muskingum River. Owing to the scarcity of labor, gristmills and sawmills were a prime necessity in pioneer settlements and were early erected.

the American manufacturers were compelled to smuggle or invent the new machinery, and it is a matter of record that both methods were practised until most of the secrets of the English inventors were duplicated in the United States. As early as 1775 a spinning-jenny after the Hargreave type was operated in Philadelphia, and in 1786 Robert and Alexander Barr, two Scotch immigrants, were granted $1000 by Massachusetts to enable them to construct machines for carding, roping, and spinning wool and cotton. These machines were

probably the first in the country based upon the Arkwright models. The first cotton factory in the United States was erected at Beverly, Massachusetts, in the following year, and was followed soon after by others in Rhode Island, New York, and Pennsylvania. The power for all of these was probably furnished by horses. Several attempts to introduce manufactures were also made in the South and West.

American inventors were likewise busy: in 1783 Oliver Evans greatly improved the grain-mills and a few years later invented the first double acting, high-pressure steam-engine on record; Rumsey, Fitch, Perkins, and others added to the list of purely American inventions. On the whole, however, manufactures languished during this period, on account of the foreign competition and the inefficiency of the government at home. Indeed, the inability of Congress to provide properly, under the Articles of Confederation, for the regulation of our foreign commerce, and the irritating commercial legislation of the States, led to the calling of the Annapolis convention and the adoption of the Constitution.

126. The Constitution and the beginning of protection. — The year 1789 does not indicate any such break in the economic life of the people as it does in their political life. With the establishment of a more centralized government, however, an effort was made on behalf of the distressed "infant manufactures" of the time to secure some protection from foreign competition.

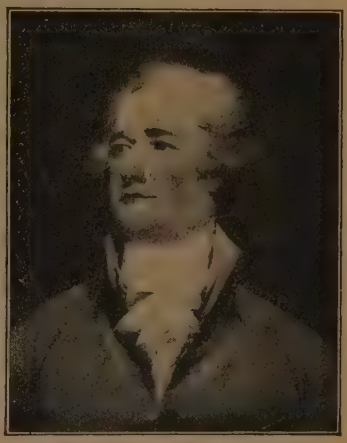
The second act passed by Congress under the new Constitution, on July 4, 1789, opened with the preamble: "Whereas it is necessary for the support of the government, for the discharge of the debts of the United States, and for the encouragement and protection of manufactures, that duties be laid on goods, wares, and merchandise imported; be it enacted," etc. While it seems clear that some measure of protection was intended by this act, the main purpose was revenue and the rates were very moderate, the average being only eight per cent. and the highest ad valorem duty fifteen per cent., which is the

lowest scale of duties ever imposed by Congress in a general act. On the other hand, it must be remembered that the great distance and high freight rates afforded considerable additional protection. In addition to this and other tariff acts passed during the years 1789–1793, a tonnage act on foreign vessels and a discriminating duty on all goods not imported in American vessels gave further protection, but this time to American shipping rather than to manufactures.

127. The birth of the factory system. — Several attempts were made in different places to introduce spinning by power, but the first complete cotton machinery was set up at Pawtucket, Rhode Island, in 1789, by Samuel Slater, called by President Jackson the "father of American manufactures." Owing to the stringent legislation against the exportation of machinery from England, Slater was compelled to make all the machinery used in this factory from memory. Several writers of this period speak of the great progress that was being made in manufacturing. Brissot de Warville says, writing of his travels in the United States: "It is impossible to enumerate all the articles to which they have turned their attention; almost one half of which were unknown before the war. . . . The spinning machines of Arkwright are well known here and are made in this country."

In his famous Report on Manufactures, in 1791, Alexander Hamilton described some seventeen industries which had already reached a considerable development, involving the collection of raw materials from various localities for the purpose of manufacturing, the division of labor, and the sale of the product in distant markets. The articles enumerated by him included manufactures of leather, iron, tools and machinery, textile goods, potters' wares, spirits, paper, hats, oil, sugar, hardware, carriages, tobacco, and gunpowder. "Besides manufactories of these articles, which are carried on as regular trades and have attained to a considerable degree of maturity, there is a vast scene of household manufacturing, which contributes more largely to the supply of the community

than could be imagined without having made it an object of particular inquiry. Great quantities of coarse cloths, etc., . . . are made in the household way, and, in many instances, to an extent not only sufficient for the supply of the families in which they are made, but for sale, and even, in some cases, for exportation. It is computed in a number of districts that two thirds, three fourths, and even four fifths of all the clothing of the inhabitants are made by themselves." In 1789, Tench Coxe estimated the total value of American manufactures as "certainly greater than double the value of their exports in native commodities," or at about $50,000,000.



ALEXANDER HAMILTON
When Washington became president he appointed Hamilton secretary of the treasury. Although only about thirty-five years of age he organized his department and soon put the finances of the government on a sound basis. He prepared numerous and valuable reports on the finances and other subjects, of which that on manufactures is one of the best known.

128. Importations of manufactures. — It must be confessed that most of the production was still carried on in the household, and that the so-called factories were small and often short-lived. The movement in favor of manufacturing, which showed itself in the passage of the act of 1789, received a serious setback in the next decade. A considerable import trade of textiles was developed from India and China, and from Russia and Holland; importations from England were also largely increased. It was cheaper to buy imported goods than to manufacture them at home. On the other hand there was an increasing demand abroad for our agricultural staples, and the outbreak of the Napoleonic wars diverted our labor and capital into this channel and that of the carrying trade.

So slow was the growth of manufactures that in 1804, fifteen years after the establishment of the first cotton-mill by Samuel Slater, there were only four cotton factories in the country. Indeed, Great Britain supplied us with such a large proportion of our manufactured goods that when in 1806 it was proposed to cease intercourse with her, such a plan was pronounced impossible. "China, glass, pottery, hardware, cutlery, edged tools, blankets, woolen cloths, linen, cotton prints, and a hundred other articles of daily use came from Great Britain in such quantity that the value of each year's imports amounted to $35,000,000, and the duties paid on them to $5,500,000, or nearly one half of the entire receipts from customs." English and French outrages against our neutral shipping, however, required retaliation; the English Orders in Council and the Berlin and Milan Decrees were soon followed by the Embargo Act, which cut off all trade with Europe and her colonies. This act may be regarded as closing the period of our colonial or formative life, and ushering in the beginning of a national, organic industrial development.

129. The condition of labor. — As during the colonial period, the majority of the population was engaged in agriculture, but, except in the South where the greater part of the labor was performed by slaves, most of the agriculturists in the country were independent farmers. The wage-earners were chiefly artisans and were to be found almost entirely in the North; it is this class that is referred to in the discussion of the condition of the laborer. The Revolution made but little difference in his lot: after, as before, the ordinary unskilled workman earned on the average about two shillings a day; the hours of labor were from sunrise to sunset. While poverty was rare, the standard of living was low, and little beyond the bare necessities of life was secured by the laborer in exchange for his wage. The westward migration and the development of the carrying trade raised the pay of unskilled labor about the beginning of the nineteenth century to between 80 and 90 cents a day.

As yet, little or nothing had been done to protect the rights of the laborer by legislation. He was paid at irregular intervals, and if not paid at all was unable to secure his dues by a lien on the product of his labor. The laws of debt were particularly harsh: for indebtedness in even the smallest sum a man could be thrown into prison and kept there until his debt and the prison charges were paid. In view of these conditions it is not surprising to find laborers organizing and endeavoring to secure redress for their grievances. At first labor organizations were formed for purely benevolent purposes, but after the year 1800 they began to agitate for the rights of labor. They do not seem, however, to have exerted any permanent influence on legislation during this early period.

130. Summary. — The restrictions placed by Great Britain upon the economic development of the American colonies led almost inevitably to the Revolution and the severance of the political ties between the two countries. After the achievement of political independence the expectation of the colonists was still that they would remain an agricultural community and would carry on a mutually advantageous trade with English manufacturers, exporting raw materials in return for manufactured commodities. The realization of this ideal was prevented largely by England's own restrictive policy, which made trade on equal terms between the two countries impossible. A movement began for closer economic union between the States, which had hitherto stood jealously apart, and for the attainment of national economic independence.

Effective prosecution of this policy was barely beginning when the outbreak of the Napoleonic wars in Europe offered opportunities for profit in commerce and agriculture which caused the diversion of all energies into those channels. While engaged in this neutral trade the United States was forced, in defense of its rights upon the high seas, to take up arms again and it chose to do so against Great Britain. By the conclusion of the War of 1812, the United States may be said to have attained practically complete commercial

independence. The struggle for national industrial independence, which was inaugurated by the suspension of foreign trade during the Embargo and the War of 1812, characterizes the next period rather than this one.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER X

1. Did the form of government under the articles of Confederation have any effect on industrial development? How? [Webster, Gen. Hist. of Com., 338–341; Hart, Hist. told by Contemp., III, chap. 6.]

2. What were the effects of the English industrial revolution on (*a*) output, (*b*) employment, (*c*) wages and hours? [Webster, Gen. Hist. of Com., 216–222; Price, Engl. Ind. and Com., 201–209; Taylor, The Modern Factory System, chap. 5; Cheyney, Introduction, 220–239; Toynbee, The Industrial Revolution.]

3. Why did England develop manufactures at this time rather than France or Holland or Germany? [Webster, Gen. Hist. of Com., 211–217; Hobson, Evol. of Mod. Cap., 72–81.]

4. Was the prohibition of the exportation of machinery by England wise? Is it practised to-day by any nations? Why? [Wright, Ind. Evol. of U. S., chap. 4; Bishop, I, 376–8.]

5. What difficulties did Samuel Slater have in introducing new machinery into the United States, and how did he overcome them? [Wright, Ind. Evol., 125; also in Rand, Econ. Hist., 311; Bishop, I, 402–3; White, Memoir of Samuel Slater.]

6. What was the Annapolis Convention and why was it called together? Did it accomplish anything? [Fiske, Crit. Per., 216; Elson, Hist. of U. S., 324; McLaughlin, The Confed. and the Const., 179–182; Hart, Hist. told by Contemp., III, 185–187.]

7. Was protection intended in the tariff of 1789, or was it purely for revenue? Give reasons. [Thompson, Hist. of Tariff, chap. I; Rabbeno, 117–126; Stanwood, I, chap. 3; H. C. Adams, Taxa. in U. S., 1789–1816, 14–34; Coman, 138–144; Hill, First Stages.]

8. What clause in the Constitution gives Congress the power to levy a protective tariff?

9. What was the condition of manufactures in the United States in 1791, according to Hamilton's report? [Hamilton's Works; also in Taussig, State Papers and Speeches on the Tariff, 79–103; Annals of Congr., *1791–1793*, 971–1034; Rabbeno, 289–324.]

10. What advantages did Hamilton think would result from their establishment in the United States? [Taussig, State Papers, 15–62; as above.]

11. What caused the so-called whisky insurrection of 1793–5?

[Bassett, The Federalist Syst., chap. 7; Howe, Taxation in U. S.; Morse, Alex. Hamilton, II, chap. 4; McMaster, History, II, 189–203.]

SELECTED REFERENCES. CHAPTER X

**Bishop: History of American Manufactures, I, II.
*Coman; Industrial History of the United States, 138–151.
**Hamilton: Report on Manufactures, in Taussig's State Papers and Speeches on the Tariff, 1–107; also in Works, in American State Papers in Finance, and in Congressional Documents.
*Rabbeno: American Commercial Policy.
*Taussig: Tariff History of the United States, 1–17.
*Webster: General History of Commerce, 337–347.

Ashley: Modern Tariff History, Pt. 2, chap. 1.
—— Eighty Years' Progress, 274–435.
Pitkin: Statistical View of the United States, chaps. 2–4.
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Winterbotham: View of the American United States, I, 293–363.
Wright: Industrial Evolution of the United States, 117–138.

PART III

THE INDUSTRIAL REVOLUTION AND THE WESTWARD MOVEMENT (1808–1860)

CHAPTER XI

THE DOMESTICATION OF THE FACTORY SYSTEM (1808–1840)

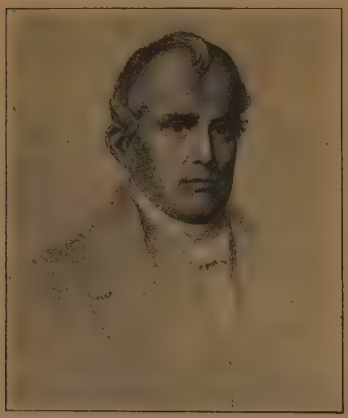
131. The American industrial revolution. — The year 1808 may be taken as a convenient line of demarcation to distinguish the period of industrial dependence of the United States upon European countries from that of industrial self-sufficiency and diversified internal development. Colonial habits and occupations had predominated after the Revolution much as they did before it. In spite of various efforts at manufacturing the country had remained largely agricultural and commercial. But with the passage of the Embargo Act, the Non-Intercourse Act, and finally the outbreak of the War of 1812, foreign trade was practically destroyed and the country thrown back upon its own resources. The domestic production of various commodities, which had previously been imported from England, was enormously stimulated by this period of restriction, and establishments for the manufacture of cotton and woolen goods, iron, glass, hardware, and other articles sprang up with mushroom rapidity all over the country. As a result of this growth there developed a strong movement for protection, to which was joined later the demand for internal improvments and the rapid disposal of the public lands; a comprehensive policy was thus formulated for the development of the resources of the country. The realization of this program was achieved by improvements in manufactures and in the means of communication, and especially

by the spread of cotton culture into the Southwest. It was an industrial revolution which completely changed the course of internal development in the United States, and while many years were necessary for it to work itself out, the beginnings may be conveniently marked by the year 1808.

132. The growth of manufactures. — The condition of manufactures at the beginning of the restrictive period may be seen from a report made by Gallatin, the secretary of the treasury, in 1809. According to this, the production of the following commodities was "adequate to the consumption of the United States": manufactures of wood, leather, soap, and tallow candles, spermaceti oil and candles, flaxseed oil, refined sugar, coarse earthenware, snuff, hair powder, chocolate, and mustard. In addition to these, the following enterprises, which were chiefly of recent development, were firmly established and supplied a considerable part, if not most, of the articles consumed: iron and its manufactures; manufactures of cotton, wool, flax, and hemp; hats; paper, printing types, printed books, and playing cards; spirituous and malt liquors; gunpowder, window glass; jewelry and clocks; manufactures of lead; straw bonnets and hats; wax candles. The total annual product of American manufactures was estimated to exceed $120,000,000. It is interesting to note the reasons given by Mr. Gallatin for the slow progress of manufactures in this country. The most important of these were the abundance of land, the high price of labor, the scarcity of capital, the greater profitableness of agriculture and commerce during the Continental wars, and the continuance of old habits.

The census of 1810 returned the manufactures of the country as $198,613,474, of which the manufactures of textiles, iron, leather, and liquors made up about one half. While these figures are not altogether trustworthy, they serve to show in some degree the extent to which manufactures had developed during this period. The number of patents, too, kept growing steadily, 237 patents being issued in 1812, of which a considerable number were for apparatus in connection with

spinning, weaving, and other processes in the manufac
of textiles. Finally, in 1816, Mr. Dallas, the secretary of
treasury, made a report in which he described the indust
which had grown up during the war; of these the principal ones were textiles, manufactures of iron and hardware, and liquors.



SAMUEL SLATER

Slater learned the business of cotton spinning as apprentice in Arkwright's firm, but having heard of the bounties offered in the United States for the introduction of English machinery, he emigrated to New York in 1789. As the exportation from England of all machinery, models, or plans was forbidden, he was compelled to memorize all the mechanical details. Upon his arrival in the United States he went to Pawtucket, R. I., where in 1789 he succeeded in building a mill and equipping it with the new textile machinery, constructed entirely from memory. The cotton manufacture of the United States dates from that time.

133. The textile industries. — The greatest development took place in the textile industries, especially in New England, where the capital previously invested in shipping and rendered idle by the Embargo and the war was now diverted into manufacturing. In 1803 there were but four cotton factories in the country; five years later there were fifteen with 8000 spindles; by 1811 the number of spindles had increased to 80,000, and by 1815 to 500,000. The consumption of raw cotton by domestic manufacturers shows the same marvelous expansion. The figures were as follows: in 1800, 500 bales; 1805, 1000 bales; 1810, 10,000 bales; 1815, 90,000 bales. In this last year the capital invested in the combined cotton and woolen industries amounted to about $50,000,000. A still further impetus was given to this industry by the int n of the power-loom in 1814 by Francis C. Lowell. e first time brought the various processes of spir l

weaving under one roof, in his factory at Waltham, Mass., which has therefore been called "the first complete factory in the world." While many of the textile mills had improved machinery, most of these earlier factories were poorly constructed and equipped, and turned out only the coarser grades of products. The factory system spread rapidly, however, and factory towns sprang up on the streams of New England and in the Middle States. Lowell, Lawrence, Holyoke, Fall River, Cohoes, and Paterson are examples.

134. The return of peace. — Upon the conclusion of peace it was expected that things would return to much the same status as before. Importations of foreign commodities were enormous: in 1814 they were $13,000,000, and in 1816, $147,000,000. The pent-up goods of English manufacturers were fairly poured into the country, where they were sold at low prices and on long credit. American merchants and consumers welcomed this stream of European luxuries and foreign wares, but to the manufacturers these enormous importations meant disaster if not ruin. At first, however, agriculture and commerce found such large foreign demand for their products that the complaint of the manufacturer was unheard amid the general rejoicing. Short crops abroad created a demand for our agricultural staples, while the increased imports and exports furnished remunerative business for American shipping. The true state of affairs was concealed by the high prices resulting from a disordered currency, but in 1818 the currency bubble was pricked and prices fell rapidly to a normal level. At the same time the position of both agriculture and shipping was made less secure; the corn laws of England went into effect in 1818 and deprived the American farmer of that market, while our commerce was prevented from expanding by the commercial restrictions imposed upon it by England, France, Holland, and other European countries. As the foreign market was cut off there grew up a demand for the development of a home market; it was seen that we must be more self-contained. At the same time the struggling

manufacturers were demanding protection against foreign importations.

135. Spread of the factory system. — The factory system of manufacture may be said to have obtained its first foothold in the United States during the restrictive period after the Embargo. By the factory system is meant the concentration of all the processes of manufacture in a factory, involving their withdrawal from the household and shop where they had previously been carried on; it involves also the organization of the workers under skilled management, for stipulated wages and fixed hours, with production for the general market and not upon order. The period was distinctly one of "industrial transition"; the use of machinery, which characterizes the modern system of manufactures, now spread gradually. After the introduction of the power-loom the manufacture of cotton and woolen goods passed rapidly from the household to the mill; but the domestic and neighborhood methods of production continued to predominate, even in these industries, down to about 1830.

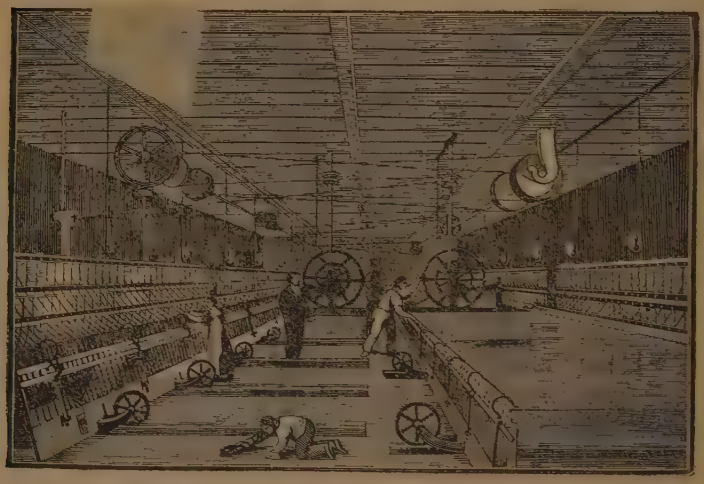
The patents for new inventions showed the same tendency to industrial efficiency: in the period 1790–1811, these had averaged 77 a year, from 1812 to 1817 they were 192, while in 1830 they reached a total of 544. There was also a considerable development of companies, incorporated and otherwise, for the prosecution of various industrial enterprises, a clear sign of the growth of capitalism. In 1824 the capital authorized to manufacturing companies in seven States amounted to $55,289,500. Two years later the amount of capital invested in manufactures in the United States was estimated at $156,500,000.

136. Economic independence. — But not merely was the period one of industrial development; the nation was rapidly becoming economically independent, and was almost self-sufficing. In 1834 the total value of all cotton goods manufactured annually in the United States was estimated at $325,000,000, while that of [illegible] goods — [illegible] exception of tea, coffee, wines, a[illegible], which the United States

did not produce — was less than $50,000,000. Within the country the factory system of manufacture had spread by 1840 from the textile to miscellaneous industries, and begun steadily to force from the market the home-made products with which every community had hitherto chiefly supplied itself. This is seen in the growth of the proportion of the population engaged in manufactures. In 1787 Tench Coxe had estimated that less than one eighth of the population was engaged in manufactures, fisheries, navigation, and trade; the census of 1820 returned 13.7 per cent. of the working population as engaged in manufacturing and the mechanic arts; in 1840 the percentage was 17.1. It is impossible to give any complete statement of the growth of manufactures during this period, as no adequate statistics were collected until 1850. The census of 1820 was so defective that Congress never authorized its publication, while in 1830 the enumeration of manufactures was altogether omitted. In 1820 the value of manufactures was given as $52,766,535, and in 1830 as $112,645,466, for ten States out of twenty-eight; but both fell far short of the mark. For 1840 the census reported manufactures to the amount of $483,278,215.

137. Cotton manufactures. — We shall perhaps get a clearer idea of the development of manufactures during this period if we trace in more detail the history of the three most important manufacturing industries in the United States at this time — cotton, woolen, and iron. During the war, as we have seen, many cotton factories had been established and the industry gave employment to considerable capital and labor. This industry, and particularly the factory method of production, received a great impetus from the introduction of the power-loom in 1814; before this only the spinning had been done by machinery, while the weaving was done at home by the hand-loom. Immediately after the war, the immense importation of foreign goods seriously embarrassed the cotton manufacturers, but, partly as a result of protection granted by successive acts from 1816 on, and partly from other causes, the

industry s me profitable again. By 1824 cotton manufactu irmly established; its further development was one of rowth. In that year Webster stated, "In some sort we are already exporting, and the products of our fac e at this moment in the South American markets." l in the price of cotton cloth after factory weaving h remarkable. "In 1815, when cotton cloth



SPINNING ROOM IN SLATERS' MILL, 1830

Samuel Slater built his first mill in 1789 and equipped it with 72 spindles and three carding machines built on the Hargreaves and Arkwright models. The above cut shows his mill in 1830 with the most improved spinning machinery. A mule spinner, carrying 3,000 spindles, could be operated by a single person, who could thus, with the aid of machinery, accomplish as much as 3000 girls spinning by hand a single thread at a time on the old-fashioned spinning-wheel.

was still woven chiefly by h the family weaver finishing only four yards of cloth a he price of ordinary for sheeting was forty ce rd. In 1822 it had to twenty-two cents, an 9 to eight and one cents." In 1850, when the anufacture had comp

abolished the old-time system, and when the power-loom was in full operation, the price was reduced to seven cents a yard as the result of machine labor. That this change of price was due chiefly to the use of machinery, and not so much to a fall in the price of cotton, is evident from a comparison of the prices of cotton and of cloth.

From the beginning, the cotton industry led all other manufactures in the amount of capital invested, the number of persons employed, and the value of the product. In 1830 the United States was second only to England in the amount of cotton consumed, and exceeded by England and France alone in the number of spindles. The industry was early localized in the New England States, especially Massachusetts; three fourths of all the cotton goods produced in 1840 were turned out by New England mills. In spite of the great improvements in this branch, however, the cotton factories were but crude affairs compared with those of to-day; according to Bishop not one in a hundred factories in the United States was provided with steam, while in England three fourths of all the factories used steam as a motive power. The progress of the cotton manufacture in the United States is perhaps best set forth in the following table, and while the figures cannot be considered accurate, they show an enormous expansion of this industry.

COTTON MANUFACTURES, 1805–1831

	1805	1815	1831
Number of establishments	4	———	795
Capital invested	———	$40,000,000	$40,614,984[1]
Number spindles in factories	4,500	130,000	1,246,503
Pounds raw cotton consumed	11,000,000	27,000,000	77,757,316
Value manufactured product	———	$24,300,000	$26,000,000
Number persons employed	———	100,000	62,157[1]

138. The woolen manufacture. — The woolen manufacture,

[1] For 1830.

like that of cotton, had received a considerable stimulus during the restrictive period, 1808–1815, although it had been hampered, unlike the cotton industry, by the lack of a satisfactory supply of domestic wool, and by taxes on the imported raw material. The value of factory-made woolen goods is said to have increased from $4,000,000 in 1810 to $19,000,000 in 1815. After this date woolen manufacturers, in common with others, had to meet the competition of large and cheap English importations. With only moderate protection from the earlier tariff laws, the manufacture steadily progressed after a few years, and by 1828 was firmly established. The development was very similar to that of cotton, which led the way; indeed the textile machinery introduced in the cotton industry was speedily transferred to the other branches of textile production. There was noticeable also the same concentration of the woolen industry in New England. Improvement in production lowered the cost and the price, so that the price of a broadcloth costing four dollars a yard in 1823 had by 1841 fallen one third; the expense of weaving it was decreased from fifty cents to fifteen cents a yard. The progress of the manufacture is presented, so far as the meager and not very trustworthy statistics permit, in the following table:

MANUFACTURES OF WOOLENS, 1815–1840

Year	Number of Establishments	Number of Wage earners	Raw Material Consumed	Value of Product	Capital
1815	———	50,000	$7,000,000	$19,000,000	$12,000,000
1840	1420	21,342	45,000,000 lbs.	20,696,999	15,765,000

139. The production of iron. — The course of events in the production of iron was so similar to that already described in regard to textile manufactures that it need not be referred to at length. During the period 1808 to 1815 importations

were cut off and a great increase in the production and manufacture of iron took place. After the conclusion of peace successive tariff measures granted considerable protection to the iron industry, and by 1824 the pig iron product probably exceeded 100,000 tons annually. As long as pig iron was smelted with charcoal the United States, with its inexhaustible forests at the water's edge, had a great advantage, and during the colonial days had exported considerable pig iron to England. But the use of bituminous coal, the invention in 1837 of the hot-air blast, and improved machinery, had reduced the cost in England below the expense of producing charcoal iron in this country. As the forests were cut down and wood became scarcer the cost of production kept increasing. The iron furnaces were necessarily small affairs and produced from two to four tons of a day. About 1840 the iron trade in this country was revolutionized by the substitution of anthracite coal for charcoal.

140. The use of anthracite coal. — The use of anthracite had long been known: as early as 1768 an ingenious blacksmith in the Wyoming valley is reported to have used it locally, and some years later several "ark" loads were floated down the Schuylkill to Philadelphia. The difficulties of transportation, however, prevented its general use. Gradually, its possibilities became known; in 1825 the first successful attempt was made to generate steam with anthracite coal, and in 1837 the first furnace for smelting iron with anthracite was built. The real development took place after 1840. But even in the decade 1830–1840 the improvement in the means of communication by the building of railroads made the deposits available, and at the same time created a demand for iron. The first important demand for iron for railroad purposes began about 1835, in which year 465 miles of road were constructed. The total number of all furnaces in the United States in 1840 was 804, and of these one half were in the two States of Pennsylvania and New York. Including miners, the entire business employed upwards of 30,000 persons, and a capital of nearly

$20,500,000. The progress of the industry is shown in the following table:

IRON MANUFACTURES, 1810–1840

Year	PIG IRON		IRON CASTINGS		WROUGHT IRON	
	Amount in tons	Value	Amount in tons	Value	Amount in tons	Value
1810	54,000	$3,616,457	Included in pig iron		———	$10,998,086
1820	20,000	2,230,276	Included in pig iron		———	4,640,669
1830	165,000	4,757,403	Included in pig iron		———	16,737,251
1840	315,000	7,172,575	286,904	$9,916,442	197,233	11,820,145

141. Tariff from 1816 to 1824. — When the conclusion of peace in 1815 opened the ports of the United States to foreign importations it was generally felt that the industries which had grown up during the period of restriction were entitled to a fair measure of protection. Accordingly a general tariff bill was enacted April 27, 1816. The new textile industries, which were especially threatened by English competition, were granted a duty of 25 per cent. until 1819, and after that 20 per cent. Other goods, such as hats, cabinet wares, manufactured wood, carriages, leather and its manufactures, paper, and sugar, were also given a measure of protection. This act has usually been considered as the beginning in the United States of the protective policy; while the earliest tariffs may have given protection, it was strictly incidental to revenue purposes, but here, for the first time, industrial and not fiscal needs determined the choice of articles and rates. There was, however, also the necessity of greater revenue for the payment of the heavy debt which had been contracted during the war. The debate on the tariff of 1816 was based on the broad question of the relative merits of free trade and protection; since then, the discussion has more and more become a contest over the scale of rates merely. The vote on the measure, too, was by no means

sectional; even the South generously voted for protection. After this measure successive acts extended the protective policy: the act of 1818 granted protection to the iron industry and extended the 25 per cent. duty on cottons and woolens until 1826.

142. Tariff from 1824 to 1842. — In 1824 the list of protected goods was greatly expanded and now included wool, iron, hemp, lead, and glass, in addition to textile manufactures; duties were also raised on silk, linens, cutlery, and spices. In this act protection was given the agricultural and extractive interests of the western and middle States, which were won over by the "home-market" argument.

This section was now the stronghold of the new movement; the South had already changed her attitude and taken a strong stand against it, while New England was divided. Agitation for still higher protection, headed by the woolen manufacturers, led to the passage of the act of 1828, which may be said to represent the high-water mark of protective legislation before the Civil War. It was passed by the aid of New England, where the manufacturing now outweighed the shipping interests, but led to bitter opposition in the South. Of this tariff John Randolph sarcastically said, "it referred to manufactures of no sort or kind except the manufacture of a President of the United States." The abominations of the act of 1828 led to a reaction which found expression in the moderate policy of the tariff of 1832, practically restoring rates to where they had been in 1824. This soon gave way in turn to the so-called compromise tariff of 1833. The determined opposition of the South, culminating in the nullification program of South Carolina, required concession from the extreme protectionists of the North. As finally passed, the act of 1833 provided for a gradual reduction of all duties exceeding 20 per cent. in the tariff of 1832 to a general level of 20 per cent.; by 1842 the reduction had actually taken place.

143. Industrial unrest. — The growth of manufactures and the prosecution of great works of internal improvement had

called into existence a large and growing class of factory operatives and skilled artisans, and had also created a demand for unskilled labor. Thousands of young men and women had been drawn from the farms into the growing cities, and thousands more had come to this country from the Old World. By 1840 there were forty-four cities in the United States with a population of over 8000 inhabitants. "That these men should be content to live under the old conditions of labor was not to be expected. The long hours of labor, the liability of imprisonment for debt, which still lingered in many States, the need of a lien law by which they might retain the commodities on which they worked to the amount of their unpaid wages, the impossibility of educating their children in a land where education counted for so much, were to them grievances of a serious kind. The first quarter of the nineteenth century, therefore, had scarcely passed when a great movement began in the manufacturing States for the rights of labor." The general unrest was crystallized and given definite form by the Evans brothers, who in 1825 began the publication of the "Workingman's Advocate," probably the first labor paper in the United States. The visit of Robert Owen to this country at this time gave a socialistic and fantastic turn to the efforts of the working people to improve their condition, and various communistic societies were formed at New Harmony, Indiana, and elsewhere. The real labor movement lay deeper, however, and continued after the failure of these schemes, concerning itself with more immediately practical aims. Organization became more general, demands were made for higher wages and for the introduction of a ten-hour day, and strikes became common, although under the common law the strikers were usually arrested and fined for conspiracy. A great step forward was made when President Van Buren in 1840 introduced the ten-hour system into the navy-yard at Washington, and in all public establishments. This example was followed slowly by private firms, and marks the beginning of a great improvement in the condition of labor.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XI

1. What are the chief characteristics of the factory system; the differences between it and the domestic system? [Cheyney, Introduction, 213; Taylor, Hist. of the Factory System; Ashley, The Early Hist. of the Woollen Industry, in Publ. Amer. Econ. Ass., II, 366–380; Wright, in Tenth Census (1880), II, 537.]

2. Did the industrial revolution in the United States lead to such bad results as in England? Why not? [American State Papers, Finance, II, 666–689; Coman, 180–185; Bishop, II, chap. 3; Ely, Outlines of Econ., 55.]

3. Describe the processes of the manufacture of cotton goods. [Bagnall, The Textile Industries of the U. S.]

4. Why did New England take the lead in manufacturing? [Weeden, see Index; Coman, 180.]

5. What were the conditions in New England textile factories in the thirties? [Wright, Some Ethical Phases of the Labor Problem, 74; Martineau, Society in America.]

6. What objections may be urged against the factory system? Are they conclusive? [Wright, in Tenth Census (1880), II, 537; Wright, Some Ethical Phases, chap. 3.]

7. Describe the early experiments with the use of anthracite coal. [Nicolls, Story of Amer. Coals, chap. 4.]

8. Why was the tariff of 1828 called the "tariff of abominations"? [Taussig, Tar. Hist., 88; Dewey, Fin. Hist., 176; Bolles, Fin. Hist., II, 393–409.]

9. Albert Gallatin in the Free Trade Memorial of 1832 said that a protective tariff involves a national loss. What did he mean? Is it true? [Taussig, State Papers and Speeches on the Tariff, 108–213; Bullock, Introduction, 355; Sumner, Protectionism, 16, 17.]

10. Why did the South oppose protection? [Wilson, Div. and Reunion, 39–61; Dewey, chap. 8; Bolles, Fin. Hist., II, 363–7; Taussig, Tar. Hist., 73.]

11. What was the nullification ordinance of South Carolina, and its relation to the tariff? [Stanwood, I, 386; MacDonald, Select Documents, 231–237; Sumner, Jackson, 281–291; Schurz, Clay, II, 1–22; McDonald, Jacksonian Democracy, chap. 9; Houston, Nullification in So. Car.]

12. Describe Robert Owen's reforms in New Lanark, Scotland. [Kirkup, Hist. of Socialism, 58; Sargant, Robert Owen; Booth, Life of Robert Owen.]

13. What communistic society was started by Robert Owen in this country? Did it succeed? Why? [Noyes, Hist. of Amer. Socialisms,

chaps. 2–4; Sargant, Robert Owen, chaps. 20–22; Booth, Life of Robert Owen; R. D. Owen, Autobiography, chaps. 3, 8, 9.]

14. How has the introduction of machinery changed the relations of workman to master? [Hobson, Evolution of Mod. Cap., 34–43.]

15. Are the opportunities for employees to rise to the rank of employers as great as they were 75 or 100 years ago?

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CHAPTER XII

THE GROWTH OF THE FACTORY SYSTEM (1840–1860)

144. The culmination of the small industry. — The period beginning with 1840 opened under circumstances of great depression for manufactures, as a result of the crisis of 1837. The check was only temporary and industry soon revived, for the prosperity of the country rested upon too solid and broad a foundation to be permanently retarded. New industries were soon developed, machinery was employed more and more, and American manufacturers were prompt to adopt new industrial methods. There was a wide diffusion of petty manufacturing and mechanical establishments in every settled part of the country and a rapid increase in the total number of such enterprises. The census of 1840 showed probably the greatest development of small manufacturing industries which the country has ever seen; after this period concentration and combination reduced the number of establishments, not only relatively to the population, but in some industries, as cotton and steel, even absolutely. The tendency to diffusion of manufacturing establishments as the population spread out over a wider territory was not as yet counteracted by the movement toward concentration, which followed the improvement of transportation facilities. There was a tremendous outburst of energy along all lines of economic activity, to which a number of forces contributed and which combined to make this an era of unprecedented prosperity and industrial expansion.

145. The patent system. — Foremost among the causes of our industrial growth must be mentioned the patent system of the United States, under which the number of inventions patented had steadily increased from 306 in the decade ending

in 1800 to 5942 in the decade ending in 1850, and to the enormous number of 23,140 in the following ten years. In 1849, for the first time, the number of patents issued in a single year passed the one thousand mark, and only three times afterwards fell below that number. The annual number steadily increased until in 1860 it reached 4819. We have already noticed the number of patents as an index of progress, but have not inquired into the system under which they were granted; we may profitably do so at this point.

Provision was first made by Congress in 1790 for giving to inventors the exclusive right to their discoveries. The term for which a patent was valid was fourteen years, and after 1836 an extension of seven years was permitted in certain cases; in 1870 the original term was extended to seventeen years. This term is longer than that granted by the patent law of any other country. Every patent contains a grant to the patentee of the exclusive right to make, use, and vend the invention or discovery throughout the United States, and is granted on filing a claim and specifications and paying certain small fees. Patents are also granted for designs and trade-marks as well as for machines.

146. Directions of inventive activity. — Most of the inventions for which patents were issued during this period consisted of labor-saving devices, the application of machinery to industrial processes, and new processes which simplified methods and reduced cost. Periods of depression, such as that following the panic of 1857, have generally resulted in a stimulation of inventive genius and a large increase in the number of patents. But the inventions of this period were not merely of new machinery; they were largely of a utilitarian character and included many of the improvements which have raised the general standard of comfort in this country. "They related to improvements in looms for producing figured fabrics; to air-heating stoves, cooking stoves, musical instruments, firearms, sewing machines, p[illegible]ting presses, boot and shoe machinery, rubber goods, floor [illegible]

and thousands of other inventions tending to raise and improve the standard of living of the people."

The following extract from an inquiry made by the House of Commons in 1841 gives an English view of Yankee inventiveness: "I should say that the greatest portion of new inventions lately introduced in this country have come from abroad . . . . I apprehend that a majority of the really new inventions, that is, of new ideas altogether in the carrying out of a certain process by machinery, or in a new mode, have originated abroad, especially in America."

The magnetic telegraph, invented in 1835, was first practically applied in 1844, and in 1846 the sewing machine was invented — two of the most important inventions of the century. The manufacture of American edge tools began; the invention of planing machines revolutionized woodworking; in 1842 the Nasmyth steam hammer was invented, and in 1847 the rotary printing press. Piece by piece, in response to industrial needs, the mechanical appliances were being perfected which made possible the enormous production of the completed factory system, and its concentration under skilled and centralized direction.

147. Other factors of industrial progress. — Other factors which aided in the industrial development of this period were the growth of population, the increase in immigration, the extension of railways, the abrogation of the English corn laws, the discovery of gold in California, and the taking up of western lands. The mere growth in numbers led to a considerable expansion in manufacturing, by adding to the number of workers and by creating a vastly increased demand for the products of American manufactures. Not only was the West built up and its marvelous resources made productive, but the population in the eastern manufacturing cities increased rapidly. While the total population of the country increased from 17,069,453 in 1840 to 31,443,321 in 1860, the number of cities of 8000 inhabitants and over rose from 44 to 141, and the urban population from 8.5 per cent. to 12.5

per cent. of the whole. Such an increase in numbers alone would have greatly influenced our industrial growth, but at the same time there was going on a territorial expansion and development of the western territory that added greatly to the wealth of the country. The abrogation of the English corn laws, by opening a profitable market to the American farmer, made him a better purchaser of manufactured goods.

This growth is reflected in the census figures of manufactures for this period. In 1850, for the first time, the annual value of manufactures passed that of agriculture, the value of the products being respectively $1,055,500,000 and $994,000,000; but in 1860 the primacy of agriculture was again restored, the products being respectively $1,885,862,000 and $1,910,000,000 for that year.

148. General prosperity. — There is general agreement among all writers as to the great industrial advance made in the United States during this period; it was a time of solid prosperity and steady, continuous progress. Sumner calls it "the golden age." The wealth of the country increased 126 per cent., and with it the general well-being of the people, so that comfort was widespread and pauperism almost unknown. The wealth of the country was as yet very equally distributed; if the poor were few, the number of the very rich was still smaller. Near the end of this period, Sir Morton Peto wrote of this point: "On their return from the United States travelers are not infrequently asked what feature struck them most favorably in their journey through the country. Looking to the territory, I should certainly answer to such a question, its wide expanse and its abundant resources; but looking to the people, I should say, *the absence of pauperism*. Nothing is more striking to a European than the universal appearance of respectability of all classes in America. You see no rags, you meet no beggars."

The prosperity of this period was interrupted by the brief but severe panic of 1857, which was occasioned by speculation, over-expansion of bank credit, and too rapid investment of

fixed capital in factories and mills, with consequent increased output of goods. But the country quickly recovered from the resulting depression of less than a year's duration, and the census returns of 1860 showed no effects from this cause whatever.

149. Growth of manufactures. — In 1850 the Federal government for the first time made an accurate census of the manufactures of the country. Products of small shops and establishments producing less than $500 each yearly were not included; but this domestic or hand industry probably amounted to $100,000,000 more. The following table shows the important facts for the years 1850 and 1860:

GROWTH OF MANUFACTURES (including lumber and fisheries)

Year	Number of Establishments	Capital	Number of Employees	Cost of Raw Materials	Value of Products
1850	123,025	$533,245,000	957,059	$555,124,000	$1,019,107,000
1860	140,433	1,009,856,000	1,311,246	1,031,605,000	1,885,862,000

Six sevenths of this amount in 1850 was made in fifteen States, chiefly in New England, which from the beginning had taken first rank as the seat of the manufacturing industries. New York at this time, however, held first position; Massachusetts and Pennsylvania were next in order. The particular industries were generally diffused throughout the whole country, though even at this early date there was some localization: bonnets and straw goods, boots and shoes, and cottons were concentrated largely in Massachusetts; hardware and rubber goods in Connecticut; coal and iron in Pennsylvania; calicoes in Rhode Island; turpentine in North Carolina; lard in Ohio; and lead in Wisconsin. The largest single manufacturing industry — flour and meal — was closely allied to agriculture; indeed, many industries were but one or two degrees removed from the extractive industries.

Flour and meal was the only industry which produced over $100,000,000 annually; three others, namely, boots and shoes, cotton, and lumber, produced over $50,000,000 each; while clothing, machinery, leather, and woolens amounted to between $25,000,000 and $50,000,000.

150. Cotton manufacturing. — The industrial progress of this period can best be traced in the separate industries, and for this purpose we may turn again to a more detailed account of three typical manufacturing interests. The cotton industry was in 1840, as it is now, the leading branch of pure manufactures, and showed a steady growth until the outbreak of the Civil War. The possession of vast and cheap supplies of the raw material gave us an advantage over all competitors, while the handicap of lack of improved machinery was being rapidly overcome. By 1850 the industry had grown so in New England, that the ratio of spindles to the population was slightly greater than in Great Britain; to each 1000 of the population it was respectively 1008 and 1003. And during the next decade the number of spindles increased faster than the population. The progress of cotton manufacturing can be best shown in the following brief tabular comparison:

GROWTH OF COTTON MANUFACTURES, 1840–1860

	1840	1850	1860
Number of establishments	1240	1074	1091
Capital invested	$51,102,259	$76,032,578	$98,585,000
Number of spindles in factories	2,284,000	3,634,000	5,235,727
Pounds of raw cotton consumed	126,000,000	———	422,704,975
Value of manufactured product	$46,350,453	$65,501,687	$115,681,774
Hands employed	72,119	94,956	120,000

By 1860 cotton manufacture had reached a high stage of development. Six sevenths of the cotton goods [illegible] his country were made here, only the finer grades bei[illegible]d to the amount of about $25,000,000 annually.

already an exportation of cottons to the Orient, amounting to six or seven million dollars' worth yearly, and the outlook for a large expansion of trade seemed promising.

151. The woolen industry. — The manufacture of woolens did not develop as rapidly as that of cotton goods; in fact, until about 1830 there had been little progress in this branch. By 1840, however, it had made a good start, and the adaptation of the power-loom to the manufacture of hosiery, carpets, and other branches of the woolen manufacture gave it a considerable impetus. The development occurred chiefly in the middle States, where the wool was grown; one half of the woolen mills in 1850 were in Pennsylvania, New York, and Ohio. As in the case of the cotton industry, the seat of the manufacture remained in New England, where about two thirds of the product was manufactured. This industry in the United States has always been hampered by the lack of a sufficient domestic supply of raw wool, and during this period the annual wool clip fell far short of the needs of manufacturers. The following table shows the progress of the industry from 1840 to 1860:

PROGRESS OF WOOLEN MANUFACTURES, 1840-1860

	1840	1850	1860
Number establishments	———	1675	1476
Capital invested	$15,765,000	$31,971,631	$38,814,422
Hands employed	21,342	45,438	50,419
Value of products	$20,697,000	$48,608,779	$73,454,000

152. Iron production. — The iron industry ranked third in the amount of capital invested in 1840, being exceeded only by the cotton manufacture, and flour, grist, and saw mills. As was pointed out in a previous paragraph, various improvements during the decade 1830-40 had greatly stimulated the production of iron, which had increased from nearly 300,000 tons in 1840–41 to about 650,000 tons in 1846–47. The most important

change had been the introduction of anthracite for smelting, an innovation which effected a revolution in the whole iron industry of the country. The manufacture of iron was greatly increased; districts which had been decreasing their production because of a scarcity of charcoal now extended their production, while new regions began sending iron to the market; and the cheapening of prices stimulated consumption and permitted the use of iron in entirely new lines. The rapid extension in its use is shown by the increase in the number of anthracite furnaces: in 1840 there were only 6 in the United States; in 1856 there were 121.

After the introduction of anthracite as fuel other improvements began to be made: the necessity of improving the blast soon led to the application of steam instead of water power to the blowing of American furnaces; the combustible gases emitted from the furnaces were also used to heat the blast. About 1850 the use of coke began in the United States, and a little later uncoked bituminous coal was used. These did not assume much importance, however, until after 1860, and did not surpass anthracite as fuel until 1875. The following table shows the change that was taking place in the methods of iron production, and especially the shifting from charcoal to anthracite:

THE PRODUCTION OF IRON, BY KINDS OF FUEL USED

Year	Anthracite	Charcoal	Bituminous	Total net tons
1842...	———	———	———	230,000 [1]
1848...	———	———	———	650,000 [1]
1855...	381,866	339,922	62,390	784,178
1860...	519,211	278,331	122,228	919,770

153. Manufactures of iron. — The use of anthracite stimulated not only the production of pig iron, but also iron manufactures. Rolled iron, which had previously been imported, was produced in this country after 1844, when anthracite iron

[1] Gross tons; others net.

to be used in puddling and other processes, and by 1856 its production had reached nearly 500,000 tons a year. Up to 1844 there were practically no facilities for manufacturing the iron rails needed for the 4185 miles of railroad in the United States, and until the tariff act of 1842 they were imported from England free of duty. Beginning with about 1844, however, iron rails were made in this country, and with the exception of a temporary setback in 1857 showed substantial progress up to 1860. The production of iron rails is given by Swank as follows:

1849	24,000 tons
1853	87,864 tons
1856	180,018 tons
1860	205,038 tons

It is clear from these figures that the iron industry of the country was only in its infancy and that the inexhaustible mineral resources of the country were as yet practically undeveloped. Nevertheless, in 1860, there was produced pig iron to the value of $20,870,120; forged, rolled, and wrought iron to the amount of $36,537,259; and cast iron of all kinds to the amount of $36,638,073. Even more important was the manufacture of machinery, which was turned out in this same year to a value of over $50,000,000, in addition to $17,000,000 of agricultural implements, $11,000,000 of hardware, and $3,000,000 of edge tools and axes.

154. Other manufacturing industries. — The important industries which were developed during this period, the value of whose product in 1860 exceeded $15,000,000, were the following, given in order of importance: flour and meal, cotton goods, sawed lumber, iron and its manufactures, boots and shoes, men's clothing, leather and skins, woolen goods, miscellaneous machinery, sugar refining, provisions, printing and publishing, carriages, distilled liquors, furniture and cabinet wares, tobacco and snuff, malt liquors, paper, soap and candles, oil, agricultural implements, bread and crackers, hats and caps, tin, copper and sheet iron, marble and stone work. A brief survey of the

foregoing list shows that many of the most important so-cal... manufactures at this time were closely allied to the extract... industries; the development of pure manufactures on a l... scale did not occur until some time after the Civil War. ... this connection two industries are deserving of special mention, as they were peculiarly characterized by the application of machinery to their methods of production, with resulting revolutionary changes therein. These were the men's ready-made clothing and the boot and shoe industries; their machine production was peculiarly an American development and was made possible by the invention of the sewing machine. In the manufacture of brass clocks there was an equally striking evidence of the ingenuity of American manufacturers; the parts were stamped out by machinery, and for cheapness and excellence were without rivals. The distribution of miscellaneous manufactures was fairly general throughout the country, every State being represented; New York, Pennsylvania, Massachusetts, and Ohio led in the value of output.

155. The tariff, 1842–1846. — The panic of 1837 had caused a serious decline in the government revenues, and to meet this deficiency it was thought best to raise the tariff duties, which had been gradually lowered, under the tariff of 1833, to a level of twenty per cent. A tariff act was therefore passed in 1842 restoring duties to about the level of the act of 1832. It was decidedly protective in character. Very high rates were placed upon those articles which it was desired to protect, as cotton bagging, window glass, cut nails, refined sugar, and especially iron, upon which the duties were as high as 77 per cent. At the same time some other administrative changes were made: specific duties were laid where possible, while cash duties, home valuation, and the examination of parties under oath made the act distasteful to importers.

When the Democrats came into power in 1845, the ... ceeded to reform the tariff along revenue lines. Rob... Walker was appointed secretary of the treasury and dr... a tariff act upon free-trade principles. Articles were d...

into several schedules, labeled A, B, C, etc., and the groups were taxed respectively 100 per cent., 40 per cent., and so on down to 5 per cent. The controverted articles, for which the manufacturers demanded protection, like iron, manufactures of metals, wool and woolens, leather, glass, paper, and wood, were placed in class C and taxed 30 per cent. While it has often been called a free-trade measure it was really only moderated protection. On the administrative side all the duties were made ad valorem, which led to considerable undervaluation and evasion. The warehousing system, under which the government stores the imported goods until the duties are paid, was introduced at this time, and this feature has been permanently retained.

156. The tariff, 1846–1861. — The period from 1846 to 1861 was one of great industrial prosperity in the United States. As has been pointed out, the gold discoveries in California, the rapid building of railroads and opening up of the West, the increase in immigration, the famine in Ireland, and other factors brought about a great revival of business and rise in prices. With this expansion of activity importations increased and with them the government revenues, until it became necessary to lower the duties in order to reduce the redundant income. The average annual yield of the tariff of 1846 was $46,000,000, while that of 1842 had been $26,000,000. In 1857 a measure was passed with little party opposition which provided for a reduction of about five per cent. from the tariff of 1846; at the same time the free list was enlarged.

Within a few months after the passage of this act a severe commercial and financial panic broke out, which greatly reduced the government revenues and resulted in a series of treasury deficits. Accordingly the Morrill tariff of 1861 restored duties to about the level of the tariff of 1846. There has been much discussion as to the degree of causal connection between the tariff measures of 1846 and 1857 and the early prosperity and later depression of this period, but it seems clear that other factors were much more important in bringing about

these results than the tariff acts. There had been an enormous addition to the circulating medium of the country, in the form both of gold and of bank-notes and credit; railroad building was excessive, speculation in western lands and doubtful industrial enterprises was general, while large importations had created a heavy balance of foreign indebtedness against us. These forces alone would undoubtedly have brought about a reaction, which at most was only precipitated by tariff changes.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XII

1. Do you regard the decrease in the number of small industrial establishments as a loss or a gain to the nation?

2. Mention some of the great fortunes made as a result of patents.

3. Is it right or expedient to give a man a complete monoply over a patented invention for seventeen years? Are inventions ever patented and then not used? Would it be better to throw open the invention to every one on condition of paying a royalty to the inventor? [Jenks, Trust Problem, 1st ed., 220.]

4. Are most successful inventions made by accident or after long study? [Smith, Wealth of Nations, book 1, chap. 1 (p. 11 in Econ. Classics); Senior, Pol. Econ., 73, 74; Mill, Princ. of Pol. Econ., book 1, chap. 8, sect. 5; Sargent, Public Men and Events, II, 193.]

5. How do the people of the Old World heat their houses? Are American methods superior?

6. Describe some unique American inventions which are peculiar, so far as you know, to this country. [Bryn, Progress of Invention, chap. 19; Coman, 227.]

7. What principles did Walker lay down in his Treasury report for 1845 to govern customs duties? [Taussig, State Papers, 214-251; Exec. Docs., 29 Cong., 1 sess., II, No. 6.

8. Do you think the prosperity of this period was due to the Walker tariff? [Bishop, II, 431; Rabbeno, 184–199; Stanwood, II, 83–93; Dewey, 256–259; Sumner, Hist. of Protection.]

9. Why was a new tariff act passed in 1857? [Dewey, 262; Stanwood, II, 97–108.]

10. Do you think it would have been advantageous for the United States to have adopted a free trade revenue tariff after the Walker tariff?

11. What arguments in favor of protection were advanced by Henry C. Carey? [Carey, Princ. of Soc. Sci., I, chap. 4, sects. 1–3, 8, 10, 14, 15, 19, 20, 26–29.]

12. What was the deficit in home-grown wool required by our manufacturers, 1840–1860? From what places was it supplied? [Twelfth Census (1900), IX, 90.]

13. Describe the manufacture of wooden and of brass clocks in the United States. [Bishop, II, 97, 396, 427.]

14. Why are patents or public franchises granted to private individuals by society?

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CHAPTER XIII

THE WESTWARD MOVEMENT

157. Significance of the westward movement. — From the beginning of our history the general movement of the population has always been westward, but the expression "westward movement" has a peculiar significance during this period, for now began on a large scale the serious task of occupying and subduing the country west of the Alleghanies. Other peoples in their growth have had to meet and conquer rival nations. With the exception of the Indians, who often obstructed or diverted but never permanently hindered the westward expansion, the only serious obstacles at this time in the way of the Americans were the natural barriers and the inadequacy of the existing means of transportation. It was the quiet, resistless, onward march, not of an invading army, but of peaceful settlers. For three quarters of a century this continued, giving character to American life and a sturdiness and energy which were lent only by contact with primitive conditions and large opportunities. The very nature of the people seems to have been changed by this great task of subduing a continent, gaining at once in initiative and vigor.

Beginning almost with the Revolution, and continuing with renewed energy after the Embargo and the War of 1812, the people of the United States addressed themselves as a nation to the development of their internal resources. After 1808 capital and labor began to be diverted from commerce and shipping and invested in western lands and eastern manufactures; attention was now directed to internal development rather than to foreign policy. Since then the great work of the American people has been that of opening up and exploiting

their own resources, and has been surpassed in importance, if at all, only by the struggle for the preservation of the Union. This was the beginning of an economic revolution and has given color to and dominated our entire industrial and political history from that day almost to the end of the nineteenth century.

158. Early westward migration. — The successful ending of the French and Indian War, which gave to England the

MIGRATING FROM CONNECTICUT TO OHIO

Settlers migrating from New England or New York to the Ohio valley usually traveled by wagon as far as Pittsburg, from which point they floated down the river to their destination. For protection against the Indians the emigrants usually went in large companies.

territory east of the Mississippi, and removed the fear of French aggression, was the signal for the first westward movement of the population. The earliest advance took place into what is now Kentucky and Tennessee: the territory between the Tennessee and Ohio rivers had been ceded to the English by the Indians, by the treaty of Fort Stanwix in 1768 and other

treaties, and lay invitingly open to settlers from Pennsylvania, Maryland, Virginia, and North Carolina by way of the Ohio River and its tributaries or by the Cumberland Gap. The movement was a slow one, retarded by Indian resistance and, after the Revolution, by English hostility, both of which had to be met and overcome, largely by the efforts of the settlers themselves. Politically these early settlements were of great importance in settling the dispute with Great Britain for possession of the western crown lands.

A steadily growing stream of soldiers with military scrip, debt-burdened and over-taxed farmers from the Atlantic seaboard, and adventurous pioneers combined to fill the western country with one of the most composite populations to be found in the United States. By 1790 there were about 200,000 persons in the territory west of the Appalachian Mountains; ten years later, 387,183; and in 1810, 1,075,398. The distress which followed the War of the Revolution and the attendant economic chaos drove the people from the seaboard over the mountains in search of new fortunes. Thus the settlement of the West began almost simultaneously with the birth of the United States as a nation; its development was to be the great task of the American people for the next century.

159. Western trade. — In the frontier of a country, according to Ratzel, is to be found an index of its growth or decay. Judged by this standard the early western settlements were significant of great national vigor. Cut off as they were from easy communication with the eastern seaboard, they were compelled to become largely self-supporting and economically independent. Of necessity the settlers were forced, by the high prices of imported goods, to manufacture articles of daily use. Almost every community had a grist and saw mill, while many had forges, tanneries, and salt works, paper and cotton mills. A few products like hides, furs, and ginseng they could send east by pack horses or wagon, [illegible] gs, cattle, and horses could be driven over the moun[illegible] most of their produce found its way down the Missis[illegible]

During the Revolution there was a considerable trade between New Orleans and the western settlements along the Ohio and Mississippi rivers; but the oppressive commercial regulations of Spain between 1785 and 1795 almost destroyed this. The agitation aroused by the closure of this natural market for western produce led to Pinckney's treaty of 1795, which secured the free and unlimited navigation of the Missis-

CONESTOGA WAGON

This was a favorite type of conveyance for transporting freight across the Alleghanies to the Ohio and Mississippi valleys previous to the introduction of the railways. Drawn by four to seven horses, they could carry from four to six tons, on which the rates from Philadelphia to Pittsburg were about $2.00 a hundred pounds; the trip between these points was made in twenty days. They were first extensively used in the Conestoga valley, from which they derived their name.

sippi, and ultimately led to the purchase of Louisiana. Important as this outlet was, the West showed little economic development; a growing population found easy subsistence on a fertile soil, but they had as yet little in the way of surplus products to sell and no important market. By 1807 the total value of the produce received at New Orleans was only $5,370,000.

160. Movement of the population. — There was a rapid settlement of the Mississippi valley after the purchase of Louisiana, and between 1810 and 1820 that movement received a new stimulus. In 1810 about one million people were living in the western States and territories, a number which more

than doubled within the next ten years. So long as free land was to be had, the rate of movement westward has always been a fluctuating one, being retarded or hastened by the economic condition of the people; in good times it has been slow; in bad times, rapid. During the period of depression following the Revolution, the migration from the Atlantic seaboard was rapid. It declined during the good times of the Napoleonic wars, with the exception of a huge wave at the time of the Peace of Amiens, which sufficed to bring Ohio into the Union. The Embargo and the War of 1812 again sent streams of settlers west in search of better conditions. This movement has been well described in Peck's New Guide to the West, published in Boston in 1837, in the following passage:

"Generally, in all the western settlements, three classes, like the waves of the ocean, have rolled one after the other. First comes the pioneer, who depends for the subsistence of his family chiefly upon the natural growth of vegetation, and the proceeds of hunting. His implements of agriculture are rude, chiefly of his own make, and his efforts directed mainly to a crop of corn and a 'truck patch.' . . . A log cabin, and occasionally a stable and corn-crib, and a field of a dozen acres, the timber girdled or 'deadened,' and fenced, are enough for his occupancy. . . . The pre-emption law[1] enables him to dispose of his cabin and corn-field to the next class of emigrants; and, to employ his own figures, he . . . 'clears out for the New Purchase' . . . to work the same process over.

"The next class of emigrants purchase the lands, add field to field, clear out the roads, throw rough bridges over the streams, put up hewn log houses with glass windows and brick or stove chimneys, occasionally plant orchards, build mills, school-houses, court-houses, etc., and exhibit the picture and forms of plain, frugal, civilized life.

"Another wave rolls on. The men of capital and enterprise come. The settler is ready to sell out and take advantage of the rise in property, push further into the interior and become himself a man of capital and enterprise in turn. The small village rises to a spacious town or city; substantial edifices of brick, extensive fields, orchards, gardens, colleges, and churches are seen."

161. Results of the movement. — The population of the northwestern States — Ohio, Indiana, Illinois, Michigan, Wisconsin, Iowa — increased from 50,240 in 1800 to 792,719 in

[1] See chap. 18, sect. 214.

1820, and 2,967,840 in 1840. "We are great," said Calhoun in 1817, "and rapidly — I was about to say fearfully — growing." So great indeed had this westward migration become by 1817 that its effects were already apparent in the East, from which most of the settlers came. In New York the increase in population between 1810 and 1816 was only 3600, which was much less than the gain in the number of immigrants in the State. The West, on the other hand, developed rapidly; there was no sudden growth of cities, however. The population simply spread out over a wider territory, which it brought under cultivation. Thus from 1820 to 1830, while the population increased 32.5 per cent., the settled area increased 24.4 per cent.; between 1830 and 1840 the increase respectively was 32.5 per cent. and 27.6 per cent. During this twenty-year period, therefore, in spite of the fact that the population almost doubled, the density of the settled area increased by only about two individuals to the square mile. Great as was this movement, the real significance lay not so much in the increase in population as in the opening up of the West. Before they could make any economic contribution to the rest of the country, however, the western settlers must have access to a market. There must not only be improvements in the means of transportation and communication, but there must be a demand for their products. The first of these conditions, as is pointed out by Callender, was in large measure met by the invention of the steamboat; the second by the spread of cotton culture through the Southwest.

162. The introduction of the steamboat on western waters. — Within four years after the launching of the *Clermont* on the Hudson (1807) the first steamboat was introduced on the Ohio; but not until 1816 did it succeed in making the trip up the Mississippi River from New Orleans against the swift current. With that event began the era of successful steam navigation on the Mississippi and its tributaries. The number of steamboats on the western rivers increased rapidly, from 14 in 1815 to 200 in 1829, and 450 in 1842. An especial impetus was given to the steamboat trade in 1824 by the decision

MISSISSIPPI RIVER STEAMERS AT CINCINNATI, 1830

After 1812 steamers multiplied on the western rivers, as the boats could be constructed anywhere out of the abundant timber, while the fuel was collected from the wood on the river bank. Only the engines and boilers had to be brought over the mountains. In 1820 it took 35 days to go up from New Orleans to Pittsburg by steam, and 10 days to go down.

of the Supreme Court in the celebrated case of Gibbons *vs.* Ogden, that the waters of the Hudson were the heritage of the people and could not be monopolized by any State or individual. A company, headed by Fulton and Livingston, who had made the first experiments on the Ohio and Mississippi, had obtained a charter from Louisiana giving them the exclusive right of navigating the Mississippi with steam vessels for fourteen years. This monopoly was now broken down and navigation made free to all, subject only to Federal legislation. In 1825 the steamboat had passed all competitors and in the next year carried fifty-seven per cent. of all the freight to New Orleans. A considerable flat-boat trade still existed, of which

MISSISSIPPI RIVER FLATBOAT

Flatboats were the chief means of conveying goods to market in the West. They could only be floated down stream, and were built of materials that could be broken up at the end of the voyage and sold as lumber. It took four months to make the journey from St. Louis to New Orleans with such a craft.

a picture is given by Levi Woodbury, who made a trip down the Mississippi in 1833:

"At every village we find from ten to twelve flat-bottom boats, which besides corn on the ear, pork, bacon, flour, whiskey, cattle and fowls, have a great assortment of notions from Cincinnati and elsewhere. Among these are corn brooms, cabinet furniture, cider, plows, apples, cordage, etc. They remain in one place until all is sold out, if the demand be brisk; if not, they move farther down. After all is sold out they dispose of their boat, and return with the crews by the steamers to their homes."

163. Extent of the internal trade. — The steamboat had furnished the western territory with a fairly rapid and adequate means of transportation, and its effect upon the trade of that section was quickly seen. Rates were high at first: from New Orleans to Louisville in 1816 freight rates were $112 a ton and passenger fares $125 (half-rates down stream), but they were materially reduced as soon as the trade became established. The improvement in speed, by reducing the time, increased the number of trips. The value of the commerce carried on the rivers expanded greatly. The value of the produce received at New Orleans in 1816 was $8,062,540, of which at least eighty per cent. came from the Ohio and upper Mississippi. This increased by 1829 to $22,065,518, and to $49,763,825 in 1840. The shipments were at first raw agricultural products, then articles like pork, flour, and others that required some process of treatment, and finally simple manufactured articles, such as bagging, rope, twine, candles, glass, and iron. They tell the story as well of the industrial advance in the Ohio valley as of the growing commerce between the sections. By 1842 the money value of the direct river trade to New Orleans was given as $50,506,903. Including the intermediate trade and the passenger traffic, the total commerce of the western rivers was probably over $100,000,000.

At the same time the trade on the Great Lakes was steadily growing, though not so rapidly as the river commerce. In 1816 the first steamer was built on the waters of Lake Ontario, and two years later the first steamer on Lake Erie, the *Walk-in-the-Water*, was launched. The building of the Erie Canal greatly stimulated the lake trade, the tonnage on all the lakes increasing from 3500 in 1820 to 20,000 in 1830, and 75,000 in 1840.

164. Spread of cotton culture into the Southwest. — The second condition to the development of the West lay in the creation of a market. This condition was met by the extension of cotton culture into the Southwest, which at once led to the settlement of that section and developed a market for the

surplus agricultural produce of the North. At the time of Whitney's invention cotton was raised only in Georgia and South Carolina; thence it spread to North Carolina and Virginia during the early years of this century, but for more than twenty years it was confined to the Atlantic seaboard. By 1811 a beginning had been made in Tennessee and Louisiana, but together they produced only one sixteenth of the cotton raised in the United States. After the war with England, Alabama and Mississippi also began to attract attention as cotton-growing regions and for the next twenty-five years a perfect stream of emigrants poured into this fertile district. By 1821 these four States raised one third of the cotton grown in the United States, by 1831 nearly one half, and by 1834 over two thirds. The production of sugar was also increasing in Louisiana at this time, and was very profitable. The growing importance of this section may be shown by the exports of cotton from Louisiana, which increased from five million pounds in 1810 to thirty in 1820 and one hundred and sixty-four in 1834. At the same time the population of the South was growing by leaps and bounds: Alabama, Louisiana, and Mississippi increased from 116,908 in 1810 to 355,756 in 1820, 660,677 in 1830, and 1,318,818 in 1840, practically doubling every ten years.

165. Effect on the South. — The effect of this extension of cotton culture into the Southwest was first of all to increase enormously the production of cotton. From 85 million pounds in 1810 the annual production grew to 160 in 1820, and 460 in 1834. Owing to a steady fall in the price of cotton the total value of the crop does not show the same increase, the figures for the same years being $12,500,000, $29,500,000, and $76,000,000; over three fourths of this was exported. With such a profitable crop, all the energies of the southern planters were devoted to extending the cotton area, other crops being completely neglected. At the same time slavery was firmly established on an economic foundation, and so far as the South was concerned the whole gain of the extension of cotton culture went to build up and extend the system of slavery. The

circle of investment, as described by a southern journal, was "making more cotton to buy more negroes to raise more cotton to buy more negroes." Most of the settlers in the Southwest were slave-holders who came from the older slave States with their property; two hundred and fifty thousand slaves are reported to have been brought into this region during the single year 1836.

By the ordinance of 1787 and subsequent acts of Congress slavery had been forbidden north of the Ohio River and east of the Mississippi, but as yet the question of slavery west of that great river had not been settled. In 1812 the slave State of Louisiana was admitted to the Union, and in 1818 Missouri applied for admission, followed a year later by Maine. The question as to whether Missouri should be admitted as a free or a slave State was hotly debated. Finally, in 1820, by the so-called Missouri Compromise, Missouri was admitted as a slave State, while, to balance the concession to the slave-owners, Maine was admitted as a free state and slavery was forbidden in the remainder of the Louisiana purchase north of Arkansas. Thus the cotton-growing States of the Southwest were opened to slavery until the time of its final abolition.

166. Slavery is firmly established. — The development of slavery proceeded with the spread of cotton culture and became firmly identified with it. By 1822 the large plantation slave system was taking the lead, and by 1840 it had displaced the small planter who was working with free labor. The character of slavery had meantime changed from the patriarchal serfdom of colonial days to a well-organized industrial system upon which was founded the economic development of the South. At the same time the attitude of the South towards the institution changed with the expansion of the cotton industry. From 1808 to 1820 many Southerners were willing to abolish the slave system, could it be done safely and without loss. From 1820 on, however, there was no talk of abolition; the demand for cotton and the movement into the rich bottom lands of Mississippi led to a demand for labor which

could not be supplied even by the traffic which began between the slave-breeding border States and the cotton-growing Gulf States. An illicit slave-trade accordingly sprang up between Africa and the West Indies or Texas, whence slaves were smuggled into the southern States. The increased prices of slaves, owing to the risk attaching to the business and to the demand in the cottonfields, proved an irresistible attraction to American capital, and much was invested in the trade. In 1815 the average value of all slaves dependent on cotton culture was $250; in 1840 it was estimated by De Bow at $500. Slavery had now become more than ever localized in the South. In 1820, only 19,108 of the 1,538,038 slaves in the United States lived north of Mason and Dixon's line; in 1840, only 1129 out of 2,487,355 were to be found there. The total number of slaves showed an increase in almost the same proportion as the white population, and this in spite of the large additions to the latter by immigration.

Toward the end of this period, in 1831, the anti-slavery movement began in the North, and continued until slavery was done away with during the Civil War. There was, however, a strong anti-abolition spirit still to be found there, while Congress remained distinctly neutral or even friendly to the slave interests, as indicated by the "gag resolutions" which tabled without further action all anti-slavery petitions presented to Congress. About 1838 a change in sentiment toward slavery began in the North, but it did not gather strength until after 1840.

167. Effect on the West. — We have already seen something of the great increase in commerce on the western rivers after 1816. It was the opening up of the Southwest, with its one-sided single-crop cultivation, that provided an outlet for the surplus agricultural produce of the North and thus permitted the development of this section as well. So great was the inclination of the cotton planters to confine themselves to their staple crop, that other products were entirely neglected, and instead of being raised at home were purchased from the

agricultural States of the Northwest with the proceeds of the cotton crop. Corn, flour, bacon, hams, lard, and live stock, with a hundred other articles of minor importance, were floated

WESTERN ARK

The "ark" was little better than a raft with a deck house and was built of rough planks which could be used for building when the journey was over. It was used for the transportation down stream of stores and freight, and was some forty feet long by fifteen feet wide. Travelers at first used the speedier and more comfortable keel boats for their own conveyance, and later the steamers.

down the Ohio and Mississippi rivers and found a ready market in the southern States. The following table shows the increase in the amount of a few products arriving in New Orleans:

RECEIPTS OF PRODUCE AT NEW ORLEANS

Articles	1822	1830	1840
Bacon, pounds	———	1,282,354	1,117,987
Corn in ear, barrels	57,179	42,194	152,965
Corn, shelled, sacks	———	290,754	278,358
Flour, barrels	120,159	360,580	482,523
Lard, kegs	13,003	131,111	177,303
Pork, pounds	142,800	953,200	5,099,987

An estimate of 1845, given by Ingle, was that in twenty years southern planters had spent $900,000,000 in neighboring States for mules, horses, implements, and clothing, an expenditure made necessary because they had employed all their labor and land in producing staple crops.

168. Effect upon the East. — The effects of the extension of cotton culture and the consequent creation of an important new market was felt in the East as well as in the Northwest. The growing manufactures of this section found a ready sale among the population west of the Alleghanies. There had thus developed a sectional or territorial division of labor, by which the South produced raw materials (mainly for export), the Northwest raised the food supplies, and the East devoted itself to manufactures. The trade in each case, however, was a one-sided one and did not lead to close economic interdependence; the East sold to the West, but did not buy from it, the West sold to the South, and the South exported three fourths of its crop to England. Some indication has already been given of the large and remunerative internal trade which resulted from the exchange of these goods. An enormous stimulus was given to the commercial interests of the country, and new opportunities were opened to the merchant, importer, ship-owner, banker, insurance company, and middlemen in general, most of whom were located in the eastern States. The growth of manufactures has been described, but it is impossible to give any adequate picture of the development of the commercial class at this period. According to an estimate by Seaman, in 1840 there were 188,000 persons engaged in commerce and navigation employing a capital of $430,000,000.

While the rapid growth in the population during this period was largely due to the natural increase of births over deaths, considerable additions were being made by immigration. The total population of the United States grew from 7,000,000 in 1810 to 17,000,000 in 1840. Of this increase it has been estimated that 114,000 were immigrants during the decade 1810-20. From 1820, when statistics of immigration first

began to be gathered, until 1840, the number of aliens was 750,949. During the twenties immigration was small, but beginning with 1832 it increased rapidly, and by 1840 had reached 84,066 for the year. The following table shows the growth in the population, and the proportion between white and colored, from 1790 to 1840:

THE POPULATION OF THE UNITED STATES, 1790-1840

Year	White	Colored	Total	Immigration during decade ending with year	Percentage of total in town of 8000 inhabitants or over	Percentage of growth of population during decade ending with year
1790	3,172,006	757,208	3,929,214		3.35	—
1800	4,306,446	1,002,037	5,308,483	about	3.97	35.1
1810	5,862,083	1,377,808	7,239,891	200,000	4.93	36.4
1820	7,862,166	1,771,656	9,633,822		4.93	33.1
1830	10,537,378	2,328,642	12,866,020	143,439	6.72	33.5
1840	14,195,805	2,873,648	17,059,453	599,125	8.52	32.7

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XIII

1. Is Bishop Berkeley's saying, "Westward the course of empire takes its way," true of the United States?

2. "The true point of view in the history of this nation is not the Atlantic coast, it is the great West. Even the slavery struggle . . . occupies its important place in American history because of its relation to westward expansion." Do you agree with this? [F. J. Turner, The Frontier in Amer. Hist., in Proc. Amer. Hist. Ass., III, 200.]

3. Did Fulton first invent the steamboat? Is he entitled to the credit of it? [Bishop, I, 75; Abbot, chaps. 2, 8; Johnson, Great Events, XV, 159–169.]

4. Where were the important western settlements? Why were these particular localities chosen? [Hart, Hist. told by Contemp., III, 97–106.]

5. How did a western emigrant move in the days before the railways? [Hart, Hist. told by Contemp., III, 114–119.]

6. What was the character of the river craft, and of navigation on western rivers? [Hulbert, Waterways of Western Expansion, chaps. 3–6; Internal Commerce of U. S., Treas. Dept., *1887*, 178–213; Abbot, 268–9.]

7. What attempts have been made to restrict the navigation of the

Mississippi River other than that mentioned in the text? [Lawrence, International Law, p. 188; Schuyler, Amer. Dipl. and Com., chap. 6.]

8. What was Mason & Dixon's line? How did it come to be established? [Channing, Stud. Hist. of U. S., 115–6; Elson, Hist. of U. S., 153; Hart, Essentials, 109.]

9. Describe the abolition and anti-abolition sentiment in the North, 1830–40. [Channing, Stud. Hist., 423–427.]

10. As the population of the cotton States grew, what proportion was white, what slave, and what free colored? [Seaman, Progress of Nations, I, 584; Coman, 216; Fifth, Sixth and Seventh Census; Eighth Census (1860), vol. on Pop., 7–16.]

11. Could the South have diversified its crops, and produced its own food products, manufactured goods, etc.? Why did it not do so? [Ingle, chap. 3; De Bow, Ind. Resources of So. and West, arts. Agric., Cotton, Slavery, South, etc.].

12. What were the exports of cotton during this period? Was there any connection between them and the total imports, and the countries involved? [Woodbury, Writings, III, 272.]

13. How much of the cotton raised was consumed at home? How much in the South? [Woodbury, Writings, III, 289–311.]

SELECTED REFERENCES. CHAPTER XIII

*Hart: History told by Contemporaries, III, chap. 21.
**McMaster: History of the People of the United States, III, 459–496; IV, 381–428; 5: 166.
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Seybert: Statistical Annals, chap. 12.

CHAPTER XIV

TRANSPORTATION AND INTERNAL IMPROVEMENTS (1808–1840)

169. Importance of transportation in the United States. — At every period of our history the need of improved means of transportation has been pressing. This has from the first settlements been the essential condition of the opening up of the continent. As the population began to push westward across the mountains and away from easy water communication, the need became greater. The political necessity of interstate communication was emphasized by the Revolution and the separatist tendencies of the rapidly growing western territory, and with the establishment of the Union a movement for improvement was inaugurated. At no time was the demand for betterment so urgent as it was during the period which succeeded the War of 1812. The difficulties of transporting troops revealed the inefficiency of existing means of transportation, and the settlement of the West which followed made improvement absolutely imperative. Only by this means could the vast interior of the continent be made accessible to the people of the United States and be connected, economically as well as politically, with the Atlantic seaboard. The westward movement of the population and the development of our resources were made possible only by the building of means of communication better than the old trails or natural waterways.

170. Stages of development. — The turnpike, the canal, the steamboat, and the railroad all mark successive stages in the improvements which were effected. The opening of the Southwest, the development of commerce between that section and the North and East, and the growth of population throughout

the entire western territory, at once occasioned, and were made possible by, the improvement of the means of communication and trade. The demand for better facilities led to the investment on the part of the people, not only in the western country, but in the East as well, of immense sums of capital in these enterprises, and resulted in an unexpected but revolutionary change in the economic policy of the country.

The history of transportation in the United States divides itself logically into three periods: the turnpike period, the river and canal period, and the railway period. Of these the first belongs to the time between the Revolution and the War of 1812. Before this movement had more than fairly gained headway, canals began to be built, and for some time also the use of the steamboat greatly stimulated river navigation. This period may be said to have continued from 1816 to 1840. About the latter date railroad building, which had begun ten years before, set in on a considerable scale and railroads began to threaten the supremacy of the canals; by 1850 they had almost superseded the latter.

171. The turnpike period. — The first American turnpike was built in 1790, and soon New York, Pennsylvania, and New England were fairly well supplied with them. They were a great improvement over the early local roads, for they were built as a continuous line for through traffic; and in spite of high tolls greatly reduced the cost of transportation. But, as compared with water carriage, land transportation was still very expensive. It cost about thirty-three per cent. of the value of goods to convey them from Philadelphia to Kentucky by land, and only four to four and one half per cent. from Illinois to New Orleans by water. On the average it cost about $10 a ton for every 100 miles to transport goods by land; articles which could not stand these rates, as flour and grain, were excluded from a market unless they found an outlet by water. During the continental wars the great demand abroad for our agricultural staples increased the need at home for better means of communication. "In a few years a sum almost equal to

the domestic debt at the close of the Revolution was invested by the people in the stock of turnpike companies."

Until 1807 the roads and turnpikes in the country had been constructed for the most part by private companies, though often with State aid. Those to the West had been built by the shortest routes through the gaps in the mountains, starting mainly from Philadelphia; Pittsburg was an important point of trans-shipment and was growing rapidly. "You may go from Philadelphia to Pittsburgh," wrote Seybert, "in the stage, 310 miles, in five and a half days, and be lodged every night on the route."

172. Federal aid. — In the year 1807 Gallatin made his famous report on Roads, Canals, Harbors, and Rivers; he proposed a comprehensive scheme of internal improvements by Congress, which would involve an expenditure of about $20,000,000. The net result of the ensuing agitation was the construction by the Federal government of the Cumberland Road or the "National Pike" from Washington to Vandalia, Ill. This was completed in 1838 at an expense of $4,300,000. Congress readily entered upon this policy of internal improvements, not merely for the economic purpose of securing better and cheaper transportation, but for political reasons also; a minor consideration was the greater speed and safety that would be given to the mails. As a solution of the problem of improved transportation, however, the building of roads was inadequate, and before the Federal government could enter upon a more general scheme of internal improvements, doubts as to its constitutionality brought the Federal system to an end. But the movement did not cease; better means of communication must be had, and the work of providing them was next taken up by the States.

173. The river trade. — The invention of the steamboat in 1807, and its introduction upon the Ohio four years later, made the rivers, as we have seen, important highways of commerce. Even in the days of flat-boats and barges the trade of the Mississippi and its tributaries had been considerable,

and it now grew rapidly. Towns like Pittsburg, Cincinnati, St. Louis, and above all New Orleans, increased steadily in population. For the agricultural products of the West the only outlet was New Orleans; but in the early days the long river journey with no hope of a return cargo, the danger to the cargo by reason of the change to the hotter climate of the lower Mississippi, and finally the long sea voyage to a market, made the shipment of produce down the river a hazardous and often losing venture. The spread of cotton culture and the peopling of the Southwest, by providing a home market at the mouth of the Mississippi, greatly increased the river trade and to some extent solved the problem of an outlet for the produce of the western country.

But the farmers in northern Ohio and Indiana, in Michigan, and other sections of the country that were not situated on a tributary of the Mississippi, still clamored insistently for better means of communication, especially with the East. In addition to the economic weakness, there was also a political danger in the situation. The country was divided into three strongly-marked sections — the East, the South, and the West — and the economic bonds holding them together, especially those between the East and West, were not sufficiently powerful to overcome the tendencies toward separation which had even now shown themselves.

174. Early canals. — While canal building on a large scale did not take place until after the turnpike period had practically ended, a beginning was made as early as 1785, when Virginia granted a charter to the James River Company. Their importance, however, had early been recognized by George Washington, and even before the Revolution he had planned a canal to connect the Chesapeake and Ohio rivers and had prophesied the union of the Hudson River with Lake Erie. He recognized that a country of such vast extent could be held together only by closer economic bonds. The first canal constructed in the United States was the Dismal Swamp Canal, begun in 1787 under a joint charter from Virginia and North

Carolina, and opened in 1794. Many other canals were projected between 1790 and 1800, especially in New York, Pennsylvania, and Massachusetts, but the era of canal building did not really occur until after the War of 1812.

175. The era of canal building: The Erie Canal. — The first answer on a large scale to the demand for improved means of communication was made by New York State in building the Erie Canal, connecting Lake Erie with the Hudson River.

ERIE CANAL

The Erie Canal was the most important artificial waterway built in the United States. By connecting the Hudson River with the Great Lakes it formed a continuous waterway from the middle west to the Atlantic seaboard, and had a wonderful influence in opening up the new sections of the country.

Gallatin names six canals that had been constructed prior to 1807 at a cost of over ten million dollars; but none of any commercial importance had been attempted until the success of the Erie Canal showed the way. The plan for this was not a new one; as early as 1792 a company had been formed to connect Lake Erie with the Hudson River. [illegible]ual work of building the canal did not begin until 181[illegible] in eight

years it was finished. The completion of the "big ditch" was celebrated with appropriate ceremonies at Buffalo, from which point a fleet of boats proceeded to New York, where their arrival was the signal for a fresh outburst of enthusiasm. A flask of water from Lake Erie was poured into New York Bay and the marriage of the inland waters with those of the ocean was declared to be consummated. The canal immediately became a source of revenue, entirely paying for itself in ten years and returning ample profits to the stockholders.

Still more important than the financial returns were the economic advantages of the canal to the community at large. Wherever the canal touched a waterway a thriving town sprang up, as at Syracuse, Rochester, and Utica. Buffalo

CANAL PASSENGER PACKET BOAT

Canal boats were at first used not merely for freight, but also for passengers. This packet boat represents one of the type used on the Pennsylvania canal about 1835.

and Albany, the terminals, grew rapidly and New York City became the leading port of the United States. Branch canals were built connecting the main canal with Champlain, Ontario, and Seneca Lakes, and these stimulated a vigorous trade. The number of vessels on Lake Champlain before the canal was opened was only 20, but a year later there were 218. Previous to the construction of the canal the cost of transportation from Buffalo to New York City was $100 a ton and the ordinary length of passage twenty days; most of the wheat of western New York was accordingly floated down the Susquehanna to Baltimore. On the opening of the Erie Canal the cost of freight fell, according to its class, to between $15 and $25 a ton, and the time of transit was reduced to eight days. Rates from Ohio

to the seaboard were steadily lowered until they were only about one tenth the former figures. Nor were the effects confined to New York State alone; the entire western lake district had secured an outlet for its produce, and much that previously went down the Mississippi to New Orleans was now shipped through Buffalo at greatly reduced rates. The building of the Erie Canal had established an economic bond between the East and the West.

176. Canals in other States. — The success of this undertaking led to a perfect mania for canal building and public improvements, which was greatest in Pennsylvania, Massa-

PASSENGER PACKET AND FREIGHT BOATS, ERIE CANAL

On the slow, but easily moving canal packet boat, travel was decidely more comfortable than in the jolting stage-coach. Seated on the cabin roof the passengers exchanged views on the scenery or the topics of the day until the cry of "low bridge" drove them down. Berths were arranged along the sides within and partitioned off by curtains. An ordinary freight boat is also shown.

chusetts, Maryland, Virginia, Ohio, Indiana, and Michigan. Philadelphia, Boston, and Baltimore saw their trade threatened by the diversion of the western commerce to New York City, and accordingly the States in which these cities were situated began to plan works to compete with the Erie Canal. The State of Pennsylvania constructed a system of canals from Philadelphia to Pittsburg, with a portage railway over the Alleghanies, at a cost of over $10,000,000. It was completed in 1834, and was successful from the beginning. Massachusetts appointed a commission to inquire into the possibility

of cutting a canal from Boston to the Hudson River, in order to divert some of the increasing western trade. By the time Baltimore was ready to act railroads had attracted favorable attention as an improved means of transportation, and in Maryland the first railroad was built in 1828.

It was in the western States, however, with their long distances and complete lack of roads, that canals were of the greatest economic significance. The opening of the Erie Canal was the signal for similar improvements in several of these States. The most important projects were those to connect the lakes with the Ohio and Mississippi rivers. By 1832 the Ohio Canal, from Cleveland to Portsmouth, had been built by the State of Ohio, joining the Ohio River with Lake Erie. The effect in stimulating production and diverting trade from its old routes was immediate; three years later there was shipped from Ohio alone 86,000 barrels of flour, 98,000 bushels of wheat, and 2,500,000 staves through by canal to New York.

At the same time the western farmer was enabled to secure better prices for his goods: products, which before had glutted the local market, could now be sent to distant points where they were in greater demand. Flour, which in 1826 sold at Cincinnati for $3 a barrel, brought $6 in 1835, and corn rose from 12 cents to 32 cents a bushel. He could also purchase his axes, plows, and other implements for a fraction of what he had formerly paid. These facts had a powerful effect upon the settlement of the West, which was now assured profitable markets and communication with the East.

177. Internal improvements by the States. — When the demand for internal improvements became urgent, the States were turned to for assistance in carrying out the plans. The reasons for invoking State aid were several. In the first place, as we have seen, the Federal government, which had undertaken willingly enough the work of improving the means of communication, had been stopped from continuing it by constitutional objections. Private capital was not equal to the task of carrying out such large enterprises as were now

being planned. Even if it existed in large enough amount, which was doubtful, the projects were too large and the returns too remote to warrant the risking of his whole capital by an individual. While these works of public improvement might have been entrusted to corporations, there was the feeling, in addition to a distrust of corporate management, that many improvements should be made that might not be commercially profitable, and that the State alone could undertake these. Moreover, the State had perpetual life and, with its high credit, could borrow the necessary capital on much better terms than could private individuals. It seemed eminently fitting, therefore, that the State governments should undertake the work of internal improvements. But there are some additional forces which should be mentioned, which explain the willingness of the State legislatures to enter upon this work.

The people of the whole country, particularly of the West, were insistent upon having improvements of every sort, and especially better means of transportation. Most of the State constitutions adopted during this period contained either directions or permissions to the legislatures "to encourage internal improvements within the State." The Federal government, though it had withdrawn from the work directly, gave assistance to the States in land and money: it donated a percentage of all sales of public lands to the States for this purpose, and distributed among them the surplus revenue of the Federal government in 1837. Finally, the success of the Erie Canal, the commercial rivalry of the Atlantic ports, and the speculative fever of the period, led the legislatures to embark in enterprises far beyond the needs or means of the people at that time.

178. Investment of borrowed capital. — The magnitude of the work of internal improvements undertaken by the States may perhaps be best shown by the increase in State indebtedness. Up to 1820 the States had incurred practically no liabilities, but beginning with that year their debts began to

grow: in 1820 they were $12,790,728; in 1830, $26,470,417; in 1835, $66,482,186. During the next three years they almost trebled, reaching over $170,000,000 in 1838, and $200,000,000 in 1840. Practically all of this money went into internal improvements — roads, canals, railroads, and banks.

The following table shows succinctly the purposes for which the State debts had been contracted up to 1838:

OBJECTS OF STATE DEBTS, UP TO 1838

States[1]	For Banks	For Canals	For Railways	For Roads	Miscellaneous	Total
Alabama	$7,800,000		$3,000,000			$10,800,000
Arkansas	3,000,000					3,000,000
Illinois	3,000,000	$900,000	7,400,000		$300,000	11,600,000
Indiana	1,390,000	6,750,000	2,600,000	$1,150,000		11,890,000
Kentucky	2,000,000	2,619,000	350,000	2,400,000		7,369,000
Louisiana	22,950,000	50,000	50,000		235,000	23,285,000
Maine					554,976	554,976
Maryland		5,700,000	5,500,000		292,980	11,492,980
Massachusetts			4,290,000			4,290,000
Michigan		2,500,000	2,620,000		220,000	5,340,000
Mississippi	7,000,000					7,000,000
Missouri	2,500,000					2,500,000
New York		13,316,674	3,787,700		1,158,032	18,262,406
Ohio		6,101,000				6,101,000
Pennsylvania		16,579,527	4,964,484	2,595,902	3,166,787	27,306,700
South Carolina		1,550,000	2,000,000		2,203,770	5,753,770
Tennessee	3,000,000	300,000	3,730,000	118,166		7,148,166
Virginia		3,835,350	2,128,900	354,800	343,139	6,662,189
Total	$52,640,000	$60,201,551	$42,871,084	$6,618,868	$8,474,684	$170,356,187

It is evident that this enormous expenditure of funds involved a large investment of capital. Little of it indeed was raised by taxation; practically all was borrowed, part at home, but most of it from foreign capitalists. The extent to which foreign capital was being invested in the United States and domestic capital and labor was being applied to the work of developing the West is well illustrated by the state of our

[1] The eight other States, which at that time belonged to the Union, had no debt, namely Connecticut, Delaware, Georgia, New Hampshire, North Carolina, Rhode Island, and Vermont.

foreign trade. During the decade 1830 to 1840 the imports exceeded the exports about $200,000,000, and at the same time the imports of specie exceeded the exports by more than $50,000,000, while in spite of our agricultural pre-eminence we imported over five and a half million bushels of wheat during the same period. The high credit then enjoyed by the American States, which had been greatly enhanced by the payment of the national debt in 1833, enabled them to borrow these enormous sums abroad, and especially in England where capital had been accumulating, at comparatively moderate rates of interest. President Jackson in 1839 estimated that about $200,000,000 were due from States and corporations to creditors in Europe.

179. Failure of State enterprise. — The crisis of 1837 put a complete stop to the work of internal improvements. As soon as the bubble of speculation and high prices was pricked, it was clear that many of the enterprises were premature and unnecessary. Most of them were extravagantly, if not corruptly, managed, while hundreds of thousands of dollars had been sunk in absolutely useless undertakings. When the debts, so easily contracted, began to press, several of the States repudiated their indebtedness; the worst offenders were Mississippi, Louisiana, Maryland, Pennsylvania, Indiana, Illinois, and Michigan, though some of them afterwards paid in part or in whole. The unwillingness on the part of the other States to be branded with the defaulting States as "repudiators," led to a demand in 1842 that the Federal government assume all the State debts, but nothing came of the agitation.

The works already built were sold by most of the States, and these speedily withdrew from the business of supplying roads and canals. The changed attitude of the people regarding the advisability of State enterprises found expression in the inclusion of provisions in practically all the State constitutions adopted after this period, prohibiting the use of State funds or credit for internal improvements. Having failed in the business once, they were to be debarred from further

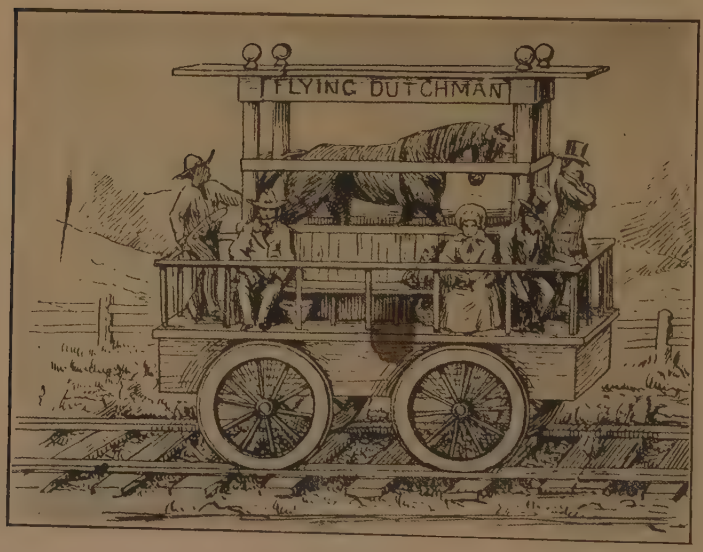
attempts along the same line. Accordingly, when the development of railroads began just at this time, the successive withdrawal of the Federal government and the failure of the State governments in this sphere left the work of building them to the enterprise of private individuals and corporations.

180. Importance of railways. — Almost before the use of canals had begun, the railway, which was to revolutionize transportation, was introduced. For a decade attempts at railroad building were largely experimental and they did not seriously compete with the canals and rivers until after 1840. The revolutionary effect which the introduction of the railway had upon the economic development of the country may, however, be briefly noted at this point; its fuller description belongs to a later chapter. The turnpikes and canals had simply followed existing or natural routes of trade. They had made communication easier and had enormously increased the traffic between the different sections of the country. The rivers, together with the canals, furnished a splendid system of transportation, but as most of these flowed north and south, something more was needed if the East was to be brought into close touch with the developing West.

SAIL CAR

When railroads were first built, experiments were made with sails and horses as motive power. The most successful sail car was built by Evan Thomas for use on the Baltimore and Ohio Railroad. It sailed equally well in either direction, according to the direction of the wind. Its main usefulness lay in showing how little power was needed to propel a car upon rails as compared with even the best roads of the time.

It remained for the railways to break down the sectional barriers and to divert the industrial development of the country into new channels. They were built east and west, they crossed the mountains and united parts of the country hitherto separated. With the introduction of the railway the country enters upon an entirely new phase of development. Owing to the



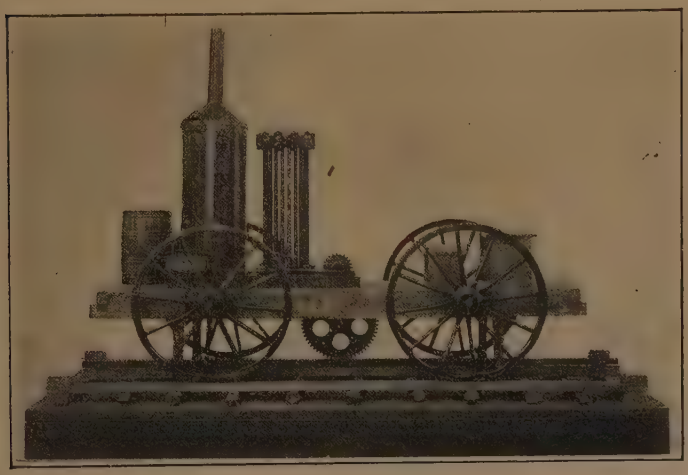
HORSE CAR

In the early days of the Baltimore and Ohio Railroad, when no one did more than dream of steam, horses were expected to furnish the motive power. The first regular passenger service on a railroad in the United States was instituted between Baltimore and Ellicott's Mills, in May, 1830. The cars were propelled by horses and made the distance of 13 miles in one and one-quarter hours.

fact, too, that the country was predominantly agricultural, the chief market for most of the produce, especially of the West and South, was on the seaboard or in Europe. The very homogeneousness of pursuits rendered the interior markets small. This fact, coupled with the enormous distances which separated different sections, made a cheap and quick means

of transportation indispensable to the full development of the resources of the country. Had it not been for the railway the full development of the far West, and of other parts of the country untouched and inaccessible by river or canal, would have been impossible.

181. Early railroad building. — The first railroad in the United States was the Baltimore and Ohio, begun in 1828 and



JOHN STEVENS'S LOCOMOTIVE

This locomotive was built by John Stevens at Hoboken, N.J., in 1825. It was exhibited to a committee of the Pennsylvania Society for Internal Improvement, while the question of constructing a railway from Philadelphia to Columbia was under consideration. It was the first steam locomotive in America, of which there is a reliable record, which carried people on a track.

opened for traffic in 1830, although the Quincy tramway, used for transporting building stone to the Bunker Hill monument, and a couple of gravity roads in the coal regions of Pennsylvania had anticipated it shortly. On the Baltimore and Ohio horse power and sails were used at first as a motive power, and not until after eighteen months of experiment was steam finally decided upon. The greatest development took place

in Pennsylvania, especially in building roads from Philadelphia to the coal regions in the central part of the State; in 1835 there were about two hundred miles of railroad in the State. Connection was made with New York in 1839. Further south great activity was displayed. The Charleston and Hamburg railroad, one hundred and thirty-seven miles in length, was the longest line under one management in the world when it was opened for traffic in 1833. Massachusetts, New York, New Jersey, and Virginia contained most of the other roads built during the first decade of railroad construction.

By 1840 the railway mileage of the country had reached 2818 miles, but most of the roads were disconnected, short lines, similar to the early street railroads. In their construction, too, they resembled these; the rails were wooden beams, placed lengthwise or end to end, with a strap of iron nailed on the upper surface to protect the wood from wear. The English locomotives, which were the first to be used in this country, being found too heavy and otherwise unsuited to American rails and road-beds, American engineers soon began to build their own. From the very first original methods have been followed on American railroads, both in the construction of the road-bed and of the rolling-stock.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XIV

1. Why were improved highways called "turnpikes"? [Johnson, Amer. Ry. Transp., 13.]

2. What were the suggestions made by Gallatin in his report of 1807? [Amer. State Papers, XX, 724, 910–921; H. Adams, Life of Gallatin, 350–352; Amer. State Papers, Misc., I, 724–741.]

3. What effect did the building of the Erie Canal have on the commercial supremacy of New York, Philadelphia, and Baltimore? [Tenth Census (1880) IV, 1–3; Hulbert, Great Amer. Canals, chap. 4; H. C. Adams, Pub. Debts. 330; Andrews, Rept. on Lake Trade, 282; Johnson, Great Events, XVI, 94–111.]

4. To what extent has the Erie Canal added to the wealth of New York State? [Fairlie, The New York Canals, in Quart. Journ. Econ., XIV, 214.]

5. Do you know of any canals in the United States, other than the

Erie and Sault Ste. Marie canals, which are extensively used to-day? [Hulbert, Great Amer. Canals; Johnson, Inland Waterways; Johnson, Ocean and Inland Water Transportation, 332.]

6. Why did Madison, Monroe, and Jackson veto Federal appropriations for internal improvements? Are such appropriations made to-day? [Messages and Papers of the Presidents, I, 584 (Madison); II, 142, 483–493 (Monroe).]

7. What was the "distribution of the surplus"? [Bourne, The Surplus of 1837; Knox, U. S. Notes, chap. 12; Dewey, 217–222; Bolles, Fin. Hist., II, 547; Roosevelt, Benton, 143–156; Schurz, Clay, II, 118–123; Sumner, Jackson, 325–331.]

8. Describe the improvements made during this period in some one State. [H. C. Adams, Pub. Debts, 325 (Mich.); Morris, Intern. Improv. in Ohio. Proc. Amer. Hist. Ass., III, 112; Tenth Census, IV, Rep. on Canals and Railroads, VII, Hist. of State Debts.]

9. Describe the repudiation of its debt by some typical State. [Scott, Repudiation of State Debts; Sumner, Amer. Currency, 162; Schurz, Clay, II, 211; Schouler, IV, 419–420; Stoddard, Life of Chas. Butler.]

10. Can a State repudiate its debt? Has the creditor no redress in the courts? How about the Federal government? An individual? [Cooley, Const. Law, 65; Adams, Pub. Debts, 8–11.]

11. Describe the early attempts at railroads in this country more fully. [Johnson, Amer. Ry. Transp., chap. 2; Hadley, R.R. Transp., chap. 2; Tenth Census (1880), IV; Poor's Manual of Railroads, *1881*, Intro.; Brown, Hist. of Locomotive; Adams, Railroads.]

12. What was thought of Geo. Stephenson's railway in England, and how successful was he? [Adams, Railroads, chap. 1; Brown, Hist. of Locomotive.]

13. Has the government built and operated railroads successfully in any country? Do you think the United States government should own the railroads in this country now? [Hadley, R.R. Transp., chaps. 10–13; Johnson, Amer. Ry. Transp., chap. 24.]

14. What is a corporation? Are they desirable? [Hadley, R.R. Transp., 42–48; Johnson, Amer. Ry. Transp., chap. 6; Talcott Williams, "The Corporation," in Organized Labor and Capital.]

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McMaster: History of the People of the United States. [See Index, "Internal improvements," "Roads," "Travel," etc.]
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CHAPTER XV

SHIPPING AND INLAND COMMERCE (1840–1860)

182. American shipping after the Embargo and the War of 1812. — We must now take up again the story of the American merchant marine from the point to which we had traced its history. During the continental wars our shipping had increased rapidly; the Embargo Act interrupted its growth temporarily, but in 1810 the tonnage engaged in the foreign trade was 981,019 tons, a figure not equaled again until 1847. The War of 1812 led to a destruction of much of our shipping: In three years we lost over 1400 merchant vessels and fishing boats, and 1814 saw the tonnage engaged in foreign trade reduced to 674,633 tons, the lowest point reached since the Revolution. Upon the conclusion of peace, the European countries took up their own carrying trade again in large part and thus deprived our own ship-owners of this employment. For the next twenty-five years the foreign tonnage remained about the same, with only slight temporary fluctuations, so that in 1839 the registered foreign tonnage was 702,400 tons, or only 27,767 tons more than in 1814. As the population was increasing, however, this really represented a relative falling off, from a per capita tonnage of 13.43 tons in 1810 to 4.25 tons in 1839. The capital of the country was being invested during this period in manufactures, internal improvements, and the development of our internal resources, which offered larger returns than the carriage of ocean freight. The high tariff, too, which imposed duties upon the materials entering into ship-building, considerably increased the cost of construction and equipment; and at the same time, by stimulating our domestic industries, reduced the amount of foreign commerce

to be transported. About 1830, moreover, England began to increase her shipping and to bid vigorously for the ocean-carrying trade.

183. Commercial legislation and treaties. — During this period a new step was taken in shipping legislation by the establishment of reciprocal liberty of commerce. By the act of March 3, 1815, all the discriminating duties imposed by former laws, both on the tonnage of foreign vessels and on the goods imported in them, were repealed in the case of any foreign nation which should abolish its countervailing duties against us. In accordance with this act, the treaty of peace with England of July 3, 1815, provided among other things for equality of duties and treatment and no discrimination between England and the United States. But England kept her West Indian ports closed to our vessels after the treaty as before, and we soon retaliated by new discriminating duties. In 1830 England agreed to open these ports and we removed many of the restrictions upon British commerce. As a result our imports from the British West Indies increased from $1901 in that year to $2,965,585 in 1840.

To meet the absolute probition of those States which simply closed their ports to us, Congress in 1817 made our navigation laws more severe: the coasting trade was absolutely forbidden to other nations, and ships engaged in foreign trade, unless two thirds manned by American sailors, were taxed fifty cents a ton. But in this act also the door was left open for repeal in the case of foreign nations which should remove their restrictions upon our vessels, and in 1828 another act provided for reciprocity with foreign nations in the indirect or carrying trade. Treaties were accordingly negotiated, which provided for "reciprocal liberty," with France in 1822, Prussia in 1828, and in subsequent years with Hamburg, Bremen, Lubeck, Norway and Sweden, Austria, Russia, Portugal, Holland, Belgium, and Switzerland. Commercial treaties were also signed with most of the Central and South American States.

184. The American clipper. — American ship-builders had

during this time developed a type of vessel which was superior to all others with which it came in competition — the magnificent sailing clipper. In the building of wooden vessels both the cost of materials and the skill of our ship-builders gave us an advantage. So superior in speed were they that, according to Levi Woodbury, an American vessel could make three trips to England in the time a British vessel was making two; while the change from square to schooner rig and the

AMERICAN CLIPPER SHIP

The square-rigged vessel reached its highest development in the clipper ships which were turned out in large numbers about 1845. The clipper was built with sharp lines to give it the maximum speed, and with a long, overhanging prow, from which the vessel gained its name. They were especially designed for the trade with China.

use of improved blocks and mechanical appliances reduced the number of seamen to two thirds those required on a foreign ship. The high character of masters and crews also made American vessels preferred by shippers.

Beginning with about 1840 a number of events occurred which combined to stimulate greatly the ship-building industry in the United States, and to give to American sailing vessels the foremost place as ocean carriers in the world. In 1840

the British-China war diverted a large part of the China trade into American hands and led to the building of the China clippers. This foreign trade was increased by the revolutionary outbreaks in Europe in 1848, by the Crimean War in 1853 and 1856, and by the rebellion in India in 1857. The discovery of gold in California and Australia and the enormous emigration to those countries led to an unprecedented passenger traffic at fabulous rates, which, with the large immigration into the United States after 1846, gave immense profits to ship-owners during these years. At the same time the lowering of the tariff in 1846 had reduced somewhat the cost of ship-building in the United States. As a result of this stimulus, there was a great over-production of ships: the tonnage engaged in foreign trade grew from 763,838 tons in 1840 to 2,494,894 tons in 1861, the highest figure for foreign tonnage that has ever been reached in our history. Including the ships engaged in the domestic trade and the fisheries, our tonnage was one third that of the world, and was practically equal to that of Great Britain.

185. The introduction of the iron steamship. — During this very period of the supremacy of the American sailing vessel, a change was being effected in ship-building which was destined to revolutionize the ocean carrying trade. This was the substitution of steam for sails, and of iron for wooden hulls. Although steamers had been used for some time in the coasting trade, it was not until 1838 that the *Sirius* and the *Great Western* crossed the ocean propelled by steam alone, the latter taking only fifteen days for the voyage. The utilization of coal in the production of steam (1836) and the invention of the screw propeller (1836–8) contributed materially to the success of ocean steam navigation. In the year 1838, iron ship-building for ocean commerce began.

England immediately took the lead in the construction of iron steamers, while our ship-builders, confident in their superiority, clung to the wooden ship. Nearly 25 [illegible] of the total tonnage of vessels built in Great Britain [illegible] were

steamers and a little more than 25 per cent. were of iron. In the United States, on the other hand, although 22 per cent. of the total tonnage built consisted of steamers, hardly any were of iron. The vessel of the future was to be the iron or steel steamer, and by not changing the material in the construction of their ships our ship-builders gradually yielded first place to Great Britain, which seized the opportunity of regaining her lost position on the seas. The British government encouraged the industry by subsidizing the steamship lines for mail

THE STEAMSHIP ASIA

The Asia was a wooden-hull steamer built for the Cunard line about 1847 for New York-Liverpool service. It cost $575,000, had horse-power of 816, and took 11 days to cross the ocean. It was provided with side-lever engines and was driven by side-wheels, and also carried generous spars and canvas in case of accident. It is a good specimen of an ocean-steamer of 1850.

service, beginning with the Cunard line in 1838 and continuing down to the present time. Although our tonnage was increasing rapidly, in 1861 we were carrying only 65 per cent. of our foreign commerce in American bottoms, as against 92 per cent. in 1807, and 83 per cent. in 1840.

186. Foreign commerce. — Our foreign trade had been greatly reduced by the Embargo and the War of 1812, but after the declaration of peace imports and exports both

increased enormously, owing to peculiar and temporary circumstances.[1] After 1818 there was a steady decline in our foreign commerce until about 1830, due to tariff legislation, the development of manufactures and of our internal resources, the passage of the English corn laws, and hostile tariff legislation of European countries. In the early thirties, however, the great development in the production of cotton, which now constituted over one half of our total exports, the growth of the West, and the large investments of foreign capital in our system of internal improvements, combined to raise our foreign commerce to over $300,000,000 for the year 1836, the highest figure yet reached. The panic of 1837 and the resulting depression reduced our foreign trade to $125,000,000 in 1843, but between 1847 and 1860, with the brief exception of the year 1857, in which a second panic occurred, the foreign trade of the United States reached the highest point it had ever attained. In 1861 our imports were $353,616,119, and our exports $333,576,057, or a total of $687,802,176. The causes for this prosperity have already been mentioned and need not be repeated here. Large as was our foreign commerce, our internal trade was growing still more rapidly. The condition of the country was well stated by Secretary Robert J. Walker, in his treasury report for 1847–8, in which he said: "The value of our products exceeds three thousand millions of dollars. Our population doubles once in every twenty-three years, and our products quadruple in the same period. Of this $3,000,000,000 only about $150,000,000 are exported abroad, leaving $2,850,000,000 at home, of which at least $500,000,000 are annually interchanged between the several States of the Union." Of the exports, cotton constituted about one half, while gold bullion, agricultural products, and manufactured articles made up about one third of the total. The major part of the export trade was carried on from New York, New Orleans, Boston, Baltimore, Mobile, Charleston, and Philadelphia, in the order named.

[1] Chap. 11, sect. 134.

187. Coasting and inland trade. — After the discriminating duties of 1789, but even more after the enactment of the law of 1817, which prohibited foreign vessels from engaging in the coasting trade, the number of American vessels enrolled in this traffic increased rapidly. In 1789 the tonnage of vessels so engaged was 68,607 tons; in 1817 it was 525,030; and by 1840, owing to the great expansion of the lake and river commerce, it had increased to 1,176,694 tons. In the next twenty years the tonnage more than doubled again, amounting to 2,644,867 tons in 1860. Ever since 1820 the tonnage in the coasting trade had equaled that engaged in foreign trade, and after 1860 it greatly exceeded the latter. At the same time the fishing industry was growing steadily, the tonnage of vessels engaged in the whale, cod, and mackerel fisheries increasing from 9062 tons in 1789 to 329,605 tons in 1860.

It is impossible to say just how this traffic was divided between the coasting and inland trade, but the commerce of the lakes and rivers had been steadily increasing during this period. After 1840, when the railroads first began to invade the West, a steadily growing share of the river trade was diverted to the quicker route. In 1845 it was estimated that of the produce of the Mississippi valley shipped to the seaboard one half found its way to market via the canals and railroads to the Atlantic coast. Of the receipts at New Orleans but 18 per cent. consisted of western produce in 1845, as compared with over 60 per cent. at the beginning of the century. The great expansion of cotton culture throughout the Southwest, however, prevented any falling off in the total New Orleans trade, which grew from $49,822,115 in 1840 to $185,211,154 in 1860. The lake trade did not develop until after the building of canals, which afforded an outlet from the interior to the lakes; but after 1840 there was a great increase, as is shown by the table on page 211.

The agricultural exports of Ohio grew from the equivalent of 543,815 bushels of wheat in 1835 to 3,800,000 in 1840, and 12,193,202 in 1851; and this was simply typical of the

expansion of the inland trade. While the tide of emigration flowed from east to west, that of commerce was largely in the reverse direction.

TONNAGE OF VESSELS ON THE LAKES (IN TONS)

1820	1830	1840	1850	1863
3500	20,000	75,000	215,787	611,398

188. Railroad competition. — While the water routes continued to be the base of all extensive transportation movements, the railroads were now beginning in a few cases to develop a serious rivalry. The carriage of coal over the Reading railroad in competition with the Schuykill Canal, and of flour over the New York Central in competition with the Erie Canal, showed the economic possibilities of the railway in the solution of the problem of cheap freight movements. For the most part, however, the railroads that were built in the United States prior to 1850 were regarded as feeders to the lakes and rivers, or as connecting links between the lakes and the Mississippi or Ohio rivers, and between inland waters and the Atlantic seaboard. The total amount of traffic moved on the waters in or about the United States still greatly exceeded that carried by the railroads; not until 1860 was the proportion reversed. In that year it was estimated that the railroads carried two thirds of the total internal trade. The freight business, even of the trunk lines, still remained comparatively small; the great development of railways was not to come until after the Civil War. For instance, the total east-bound freight on the Pennsylvania railroad in 1859 was 353,164 tons; westward it was 190,705 tons. On the New York Central the total east-bound tonnage was 570,927 tons; the west-bound was 263,392 tons.

In spite of this small showing, the influence of the railroads in developing the West, in building up its population and

PIONEER

FAST LINE,

BY RAIL ROAD CARS AND CANAL PACKETS,

From Philadelphia to Pittsburgh,

THROUGH IN 3½ DAYS:

AND BY STEAM BOATS, CARRYING THE UNITED STATES' MAIL,

From PITTSBURGH to LOUISVILLE.

Starts every morning, from the corner of Broad & Race St.

In large and splendid eight wheel cars, via the *Lancaster and Harrisburg Rail Roads*, arriving at the latter place, at 4 o'clock, in the afternoon, where passengers will take the Packets, which have all been fitted up in a very superior manner, having been built *expressly for the accommodation of Passengers*, after the most approved models of Boats used on the Erie Canal, and are not surpassed by the Boats used upon any other Line.

The Boats are commanded by old and experienced Captains, several of whom have been connected with the Line for the two last seasons. For speed and comfort, this Line is not excelled by any other in the United States.

Passengers for Cincinnati, Louisville, Natchez, Nashville, St. Louis, &c.

Will always be certain of being taken on without delay, as this Line connects with the Boats at Pittsburgh, carrying the Mail

OFFICE, N. E. CORNER OF FOURTH AND CHESNUT ST.

For seats apply as above; and at No. 280 Market Street; at the White Swan Hotel, Race Street; at the N. E. corner of Third and Willow Streets No. 34 South Third Street; and at the West Chester House, Broad Street.

Philadelphia, April, 1837. *A. B. CUMMINGS, Agent.*

TRAVELING IN 1837

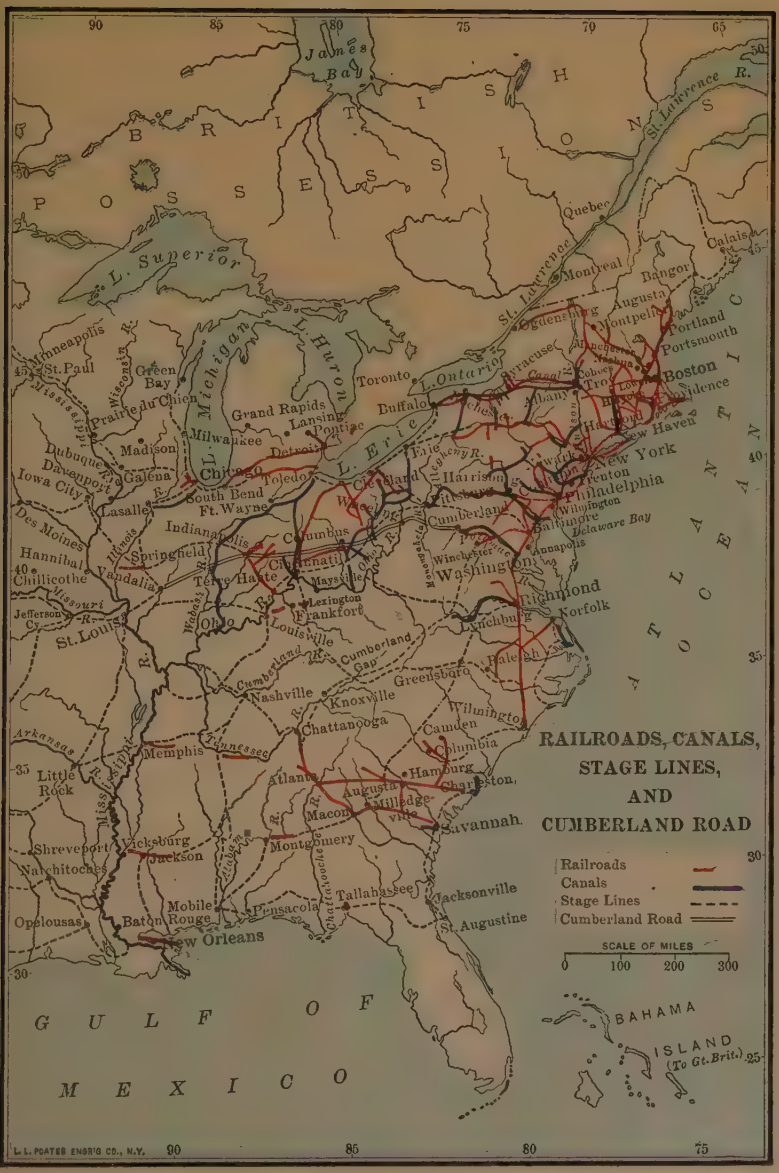
This advertisement shows the character of the transportation service in 1837 and the following decade. In those days the journey from Philadelphia to Pittsburg took three and a half days. Now it takes less than nine hours.

moving its produce, and in reducing the cost of transportation, was enormous. About 1850, Mr. Henry C. Carey wrote: "Twelve years since the fare of a passenger from Chicago, Illinois [by lake and rail to New York City], 1500 miles, was $74.50. It is now but $17. . . . Twelve years since the cost of transporting a bushel of wheat from Chicago to New York

Railroad Station at Lancaster, Pa.
The trip from Philadelphia to Pittsburg was made by the Pioneer Line via Lancaster in three and one-half days. Here there was a meeting of the old and new methods of transportation, the emigrant wagon and the railroad.

was so great as effectually to keep the grain of that country out of the market. Now a bushel of wheat is transported the whole distance, 1500 miles, for 27 cents. A barrel of flour can be transported from Chicago to New York for 80 cents." Indeed, it may be said that without the railroads the increasing produce of the West could not have been marketed at all.

189. Railroad building. — After 1840 a number of mechanical, engineering, and manufacturing improvements were made in the United States which greatly facilitated railroad construction. Perhaps the most important was the substitution of iron rails for the flat strips which had previously been used, and which now permitted both a heavier load and greater speed; about 1844 the manufacture of iron rails began in the United States to supply the increasing demand. During the decade 1840–50 railroad building was most rapid in New


RAILROADS, CANALS, STAGE LINES, AND CUMBERLAND ROAD
Railroads
Canals
Stage Lines
Cumberland Road
SCALE OF MILES
0 100 200 300
BRITISH POSSESSIONS
ATLANTIC
GULF OF MEXICO
BAHAMA ISLAND
(To Gt. Brit.)
L. Superior
L. Michigan
L. Huron
L. Erie
L. Ontario
St. Lawrence R.
James Bay
Quebec
Montreal
Toronto
Buffalo
Boston
New York
Philadelphia
Washington
Richmond
Norfolk
Charleston
Savannah
Jacksonville
St. Augustine
Pensacola
Mobile
New Orleans
Baton Rouge
Vicksburg
Memphis
Little Rock
Nashville
Knoxville
Chattanooga
Atlanta
Columbia
Wilmington
Raleigh
Greensboro
Cincinnati
Louisville
Frankfort
Lexington
Columbus
Indianapolis
Chicago
Milwaukee
Detroit
St. Paul
Minneapolis
Green Bay
Madison
Galena
Dubuque
Davenport
Iowa City
Des Moines
Hannibal
St. Louis
Jefferson Cy.
Chillicothe
Vandalia
Springfield
Lasalle
Ft. Wayne
South Bend
Toledo
Cleveland
Pittsburg
Harrisburg
Baltimore
Annapolis
Wilmington
Delaware Bay
Trenton
Albany
Troy
Utica
Syracuse
Rochester
Niagara
Portland
Portsmouth
Providence
New Haven
Hartford
Springfield
Lowell
Concord
Bangor
Augusta
Montpelier
Ogdensburg
Calais
Grand Rapids
Lansing
Pontiac
Prairie du Chien
Wisconsin R.
Mississippi R.
Illinois R.
Missouri R.
Ohio R.
Cumberland R.
Tennessee R.
Arkansas R.
Red R.
Miss. R.
Alabama R.
Chattahoochee R.
Savannah R.
Pedee R.
Cape Fear R.
Roanoke R.
Potomac R.
Susquehanna R.
Delaware R.
Hudson R.
Connecticut R.
Kennebec R.
Penobscot R.
Cumberland Gap
Lynchburg
Winchester
Hagerstown
Harrisburg
Williamsport
Elmira
Utica
Albany
Troy
Lowell
Concord
Hartford
Springfield
Providence
New Haven
Portland
Portsmouth
Boston
Bangor
Augusta
Montpelier
Ogdensburg
Calais
Quebec
Montreal
Toronto
Buffalo
Cleveland
Toledo
Detroit
Milwaukee
Chicago
Galena
Madison
Green Bay
Prairie du Chien
St. Paul
Minneapolis
Grand Rapids
Lansing
Pontiac
Erie
Pittsburg
Cumberland
Harrisburg
Baltimore
Annapolis
Wilmington
Trenton
Philadelphia
New York
Hartford
New Haven
Providence
Boston
Portland
Portsmouth

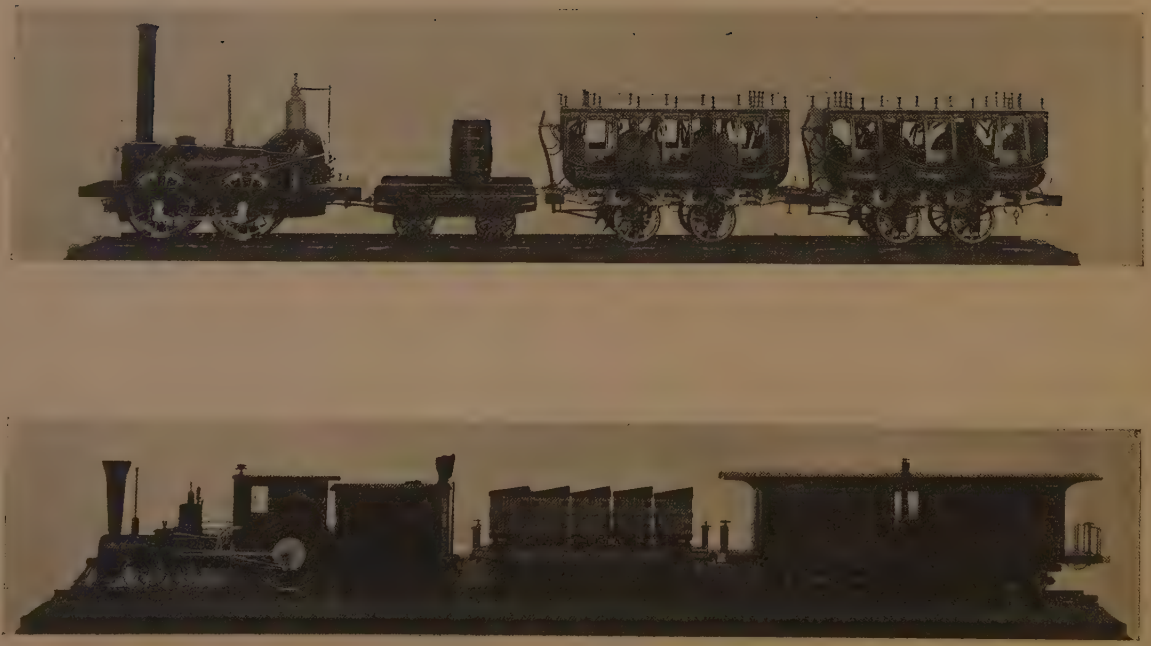
England and the middle States; and by 1850 there were 9021 miles of railroad in the country. In the following decade the middle and South Atlantic States developed their transportation systems on much the same lines as they at present exist, while the then western States, between the Alleghanies and the Mississippi, entered upon an era of marvelously rapid construction. Chicago was connected with New York in 1853, and the following year the Mississippi was reached. In 1855 St. Louis was given through rail connection with New York, and the building of lines into the Northwest was begun, one of which reached the Missouri River in 1858. The total mileage of the country in 1860 was 30,635 miles, or more than three times what it was ten years before.

Owing to causes already enumerated,[1] railroad building at this time was left in the hands of private individuals or corporations; but although the States did not engage directly in the construction of railroads, they gave valuable assistance by subscriptions of stock, loans of State credit, and finally by land grants. The Illinois Central was the first road to receive a land grant, in 1850, from the State of Illinois, but the example was quickly followed by Missouri, Arkansas, Michigan, Wisconsin, Iowa, Florida, and Louisiana. Up to 1861 there had been granted for internal improvements, mostly railroads, 31,600,842 acres of public lands.

190. Improved means of communication. — Probably the most important single event of this period was the invention of the electric telegraph. As early as 1832 Samuel F. B. Morse was experimenting with a plan of telegraphic communication, and in 1838 exhibited his invention to congressional committees; in 1843 Congress voted him an appropriation of $30,000 to establish a line betweeen Washington and Baltimore, which was put into successful operation in June, 1844.[2] By

[1] Chap. 14, sect. 179.

[2] The electro-magnetic telegraph of Cook was patented in England in June, 1837, and in July of the same year Steinheil put his telegraph into operation between Munich and Bogenhausen.



DEVELOPMENT OF THE RAILROAD TRAIN

The locomotive and cars in the upper picture comprised the first train drawn by steam in the State of New Jersey, Nov. 12, 1831. The passenger cars show the early use of stage bodies on car trucks. In the lower picture is shown the evolution of the American type of passenger car, with end doors and long central aisle.

1860 about 50,000 miles of telegraph were built in the United States, connecting all the important cities of the Union; the first line to San Francisco was completed the following year. The postal system was also improved and extended during this period; in 1860 there were about 186,000 miles of postal roads in operation. Owing also to improvements in the printing press — the cylinder press was first operated in 1847 — and in the manufacture of paper, the number of newspapers had greatly increased. At the end of this period there were nearly 400 daily newspapers issued in the United States, and no less than 3266 daily, weekly, bi-weekly, and monthly papers, aggregating some 10,000,000 copies. In 1850 the rate of postage on a prepaid letter was reduced to three cents for any distance under 3000 miles. The effect of these improved systems of communication on the thought and development of the country was enormous.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XV

1. In what way did the tariffs of 1824, 1828, etc., increase the cost of ship-building? [Taussig, Tar. Hist., 76, 90, 93; Taussig, State Papers, 317–385 (Webster's speech); Dewey, 179; Grosvenor, Does Protection Protect? chap. 5.]

2. Describe a voyage to California in a sailing clipper. [Dana, Two Years before the Mast.]

3. Tell all about a clipper ship and a specimen voyage to, say, China or Australia. [G. F. Train, Autobiography; Marvin, 253; Johnson, Ocean and Inland Water Transp., 20.]

4. What was the substance of the shipping acts providing for "reciprocal liberty of commerce?" Do you consider that they were advantageous to the American merchant marine? [Bates, Amer. Nav., chap. 8; Bates, Amer. Mar., 173; Marvin, chap. 9.]

5. Why did England turn so readily to the construction of iron ships and the United States so slowly?

6. Why was the use of steam as sole motive power delayed so long for ocean voyages after its use on rivers and along the coast?

7. Did the subsidy policy succeed in 1854? Would it be desirable to introduce this system now? [Bates, Amer. Mar., 142, 148; Coman, 230–232; Marvin, chaps. 12, 18; Johnson, Ocean and Inland Water Transportation, chap. 22.]

8. What were the principal shipping ports before the Civil War?

9. What were the causes which led to the expansion of our foreign commerce after 1846? [Webster, Gen. Hist. of Com., 361; Taussig, Tar. Hist., 116–122; Rabbeno, pp. 184–199.]

10. What were the principal exports and imports of the United States during this period? [Pitkin, Statistical View, chaps. 3, 6; U. S. Treas. Reports.]

11. What changes were taking place in the produce that went down the Mississippi to New Orleans? What were the reasons? [Intern. Commerce, Treas. Rep., *1887*, 209.]

12. What effects did the railroads have upon the development of the West? [Thompson, The Rise and Decline of the Wheat-growing Industry in Wisconsin.]

13. Describe the experience of some State in its early dealings with railroads. [Million, State Aid to Railways, 1–26.]

14. Describe the invention of the telegraph and the difficulties in its early application. [Bryn, Progress of Invention, chap. 3; Jones, Hist. Sketch of Electr. Telegr., chap. 8; Johnson, Great Events, XVII: 1-10; Sargent, Public Men and Events, II: 193.]

SELECTED REFERENCES. CHAPTER XV

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*Coman: Industrial History of the United States, 130–138, 228–242.
*Kelley: The Question of Ships, chaps. 1–5, 11.
*Lynch: Report on Causes of Reduction of American Tonnage.
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**Soley: American Merchant Marine, in Shaler's The United States, 1: 518–624.

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—— Tenth Census (1880), vol. IV, on Transportation.
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CHAPTER XVI

CURRENCY AND BANKING

191. Currency and banking to 1811. — A new country always experiences a lack of money as compared with other forms of capital, and in the United States this need led to various devices for increasing the supply of currency. Resort was had to issues of paper money directly by the government, or by banks chartered by Federal and State governments, and to coinage of the precious metals at United States mints. Owing to a mistaken economic analysis of the financial needs of the country, the demand for abundant and cheap money continued persistently until the Civil War; since that time it has been confined chiefly to the newer sections of the country. The excesses of the colonies in the issue of paper money had led Parliament in 1751 to forbid any further issue of legal tender bills of credit by the New England colonies; in 1764 this prohibition was extended to all the colonies. While this caused great dissatisfaction in America and must be regarded as one of the causes leading to the Revolution, it abolished most of the paper money issues. With the outbreak of the Revolution, however, resort was had, from choice as well as necessity, to paper money as a means of revenue; in less than five years Congress authorized issues amounting to $241,552,780, while the States in addition issued $209,524,776. Depreciation soon set in and by 1781 the whole mass of money had become practically worthless. Notwithstanding this disastrous experience seven of the States plunged again into paper money emissions during the years 1781–1788. The adoption of the Constitution, which, as a result of these bitter experiences, forbade the emission of bills of credit by the States, put

an end to the issue of government paper money for sixty years. A national coinage system was adopted in 1792, which provided for the decimal system of coinage and a double standard at a ratio of fifteen to one.

During the revolutionary period three banks had been established, but with the formation of the new government there was need of a strong central financial institution which should be able to act as the fiscal agent of the government,

The United Colonies
EIGHT DOLLARS
No. 39967 EIGHT DOLLARS
THIS Bill entitles the Bearer to receive EIGHT Spanish milled DOLLARS or the Value thereof in Gold or Silver, according to a Resolution of CONGRESS, passed at Philadelphia, Nov. 2 1776
MAJORA MINORIBUS CONSONANT
EIGHT DOLLARS
CONTINENTAL CURRENCY

CONTINENTAL PAPER MONEY

The Continental Congress was not given the power to tax the people, and consequently was compelled to issue paper money in order to carry on the war. In the five years, 1775–1779, over $241,000,000 was issued, and it finally became almost valueless. "Not worth a continental" was a synonym with utter worthlessness.

Accordingly the First United States Bank was chartered in 1791 for twenty years, with a capital of $10,000,000, of which the government subscribed one fifth. It was of great service to the treasury department in making loans, and acting as a depository and transfer agent of the public funds. This institution was later supplemented by the organization of State banks.

192. Currency and banking, 1811–1836. — Upon the ex-

piration of the charter of the First United States Bank in 1811, State banks sprang up in great numbers — 120 new banks being chartered and put into operation in the three following years — and undertook to furnish the country with bank-notes and credit currency. Being generally unrestricted in their issues by legislation or even by a well-informed public opinion, they soon over-issued their notes. An inflation of the currency with the attendant phenomena of rising prices and speculation ensued in 1816–19, to be brought to an end by a panic and crisis in the latter year. In the meantime the Second United States Bank had been chartered in 1816 for twenty years. By its charter the circulation was limited to the capital of the bank, $35,000,000; notes were made payable in specie on demand, and were receivable in all payments to the United States. In response to the unreflecting demand on the part of the public for means of exchange, the State banks continued to issue their notes and make loans freely, upon a wholly insufficient specie reserve. The notes were generally over-issued, were not redeemed in specie on demand, and were consequently of doubtful value and fluctuated greatly. Accordingly, when the United States Bank was established under strict provisions as to its note issues, its notes passed at par and were much sought after. The Bank acted in a measure as the "regulator of the currency," and compelled the State banks, on pain of losing their circulation, to limit their issues and maintain specie payments. In many cases it insisted that the State banks should redeem their notes in specie, thus making itself very unpopular in the South and West, where public opinion did not support such action.

193. Inflation of the currency. — At the expiration of the twenty-year period in 1836 Congress refused to recharter the United States Bank, and the way was open again for an expansion of State Bank circulation. The speculative enthusiasm of the times, the internal improvements by the States, and the investments in western lands created a great demand for capital and credit, and many local banks were hastily

LOCAL BANK STATISTICS, 1834-1860.

organized to secure the enormous profits that seemed promised. The active speculation in the public lands especially led to the creation of banks for the purpose of financing these investments. "Borrowers found ready accommodation at local banks, and with the loans thus secured made their purchases from the land receiver; the purchase-money in many instances was thereupon re-deposited in the bank whence it came, where it once more served as a loan to another or even the same land speculator." [1] The inflation brought about by this bank expansion may be seen in the following table (in millions of dollars):

Year	No. of banks	Capital	Circulation	Loans
1829	329	110.2	48.2	137.0
1834	506	200.0	94.8	324.1
1836	718	251.9	140.3	457.5
1837	788	290.8	149.2	525.1
1843	691	228.9	58.6	254.5

194. The panic of 1837. The coinage. — On July 11, 1836, the treasury department issued the so-called specie circular, which was an order to the government agents for the sale of public lands, that they should thereafter take in payment for the land only specie, and no longer receive the notes issued by non-specie paying banks. This check upon land speculation, together with other factors — the ill-advised distribution of the surplus revenue, the over-investment of fixed capital in internal improvements, and the failure of American crops in 1835 and 1837 — brought about a panic in 1837, which prostrated all business. The value of real estate in New York City depreciated more than $40,000,000 in six months; by 1842 it had sunk to $176,489,012. The circulation was rapidly contracted from $149,000,000 in 1837 to $58,000,000 in 1843, while the sales of public lands steadily fell off until they reached about 1,000,000 acres in 1841.

[1] Dewey, Financial History of the U. S., p. 225.

While the excessive issues of bank-notes had driven specie out of general circulation during a large part of this period, coins were always to be found in the commercial centers of the country. They consisted for the most part of a heterogeneous collection of foreign coins, often clipped and mutilated; no American silver dollars were coined from 1806 to 1836, and gold had disappeared under the ratio of 1792, which under-valued it. By the acts of 1834 and 1837 the ratio between gold and silver was changed from fifteen to one to sixteen to one; as this slightly over-valued gold, it came rapidly into circulation again in place of silver, and the silver coins began to disappear. The policy of the administration, also, in insisting on the use of specie in government transactions and on the maintenance of specie payments by banks acting as government depositories, enlarged the stock of coin in general circulation. As yet, however, but little gold or silver was mined in the United States.

195. Discovery of gold in California. — In January, 1848, James Marshall, while building a mill for John A. Sutter in Eldorado County, noticed shining particles of gold in the mill race. When this discovery was followed up, rich deposits of gold were found in the neighboring region. Immediately the news spread to the surrounding settlements, and more gradually to the East and to Europe. A great immigration of gold hunters set in; around Cape Horn, across the Isthmus of Panama, and over the western plains by wagon, they thronged to the gold fields. By the end of 1849 more than 80,000 immigrants — the "forty-niners" — were settled in California. The first and most important result of this discovery was an enormous increase in the production of gold: in 1850 California produced $36,000,000, which was equal to the annual average production of the whole world during the previous decade. In 1851 the production reached $56,000,000, and in the same year gold was discovered also in Australia. As a result of these discoveries there was a large addition to the world's supply of specie, thus raising the general level of prices;

immigration was greatly stimulated, the far West was more rapidly settled, and the construction of a transcontinental railroad was hastened.

SUTTER'S MILL AND RACE

Sutter's saw-mill, where gold was first discovered, was situated about sixty miles from Sutter's Fort, now called Sacramento. The news of the discovery spread like wild-fire and led to a remarkable rush to the gold fields. So momentous were its effects that President Polk called attention to it in his annual message of that year.

196. Currency and banking. — Owing to the plentiful supply of gold and its growing cheapness that metal now began to displace the few silver coins that remained in circulation after the act of 1834. When the smaller coins disappeared, the inconvenience was so great that Congress passed the law of 1853, debasing the fractional coins in order to keep them in circulation by decreasing the amount of pure silver in each. Up to this time the half dollars, quarters, and dimes had

contained exact fractions of the amount of silver in a silver dollar; the same causes that led to the withdrawal of silver dollars from circulation removed also the fractional silver. The act of 1853 sought to remedy this by reducing the amount of silver in the fractional coins and making them mere token money. Accordingly the smaller coins remained in circulation, while silver dollars practically disappeared from use.

After the revulsion of 1837, and resulting depression, the number of banks and their business, as indicated by their loans and discounts, remained fairly steady for a decade. About 1853 another period of expansion and speculation set in which led to a rapid extension of circulation from 146 millions of dollars in 1853 to 215 millions in 1857, and of loans from 409 millions to 685 millions. This expansion was one of the factors in the financial panic of 1857. The stability and soundness of the banks differed greatly in different parts of the country. In Massachusetts and New England generally, under the Suffolk system, and in New York under the safety fund and free banking or bond deposit systems, sound banking methods were gradually developed, but in the western States the losses by bad banking were still very great and extraordinary looseness in legislation and administration prevailed. At one time as many as 5400 different kinds of specious or counterfeit notes were recorded as being in circulation. By the establishment of the national banking system in 1863, most of these early evils were brought to an end.

197. Population and immigration. — The population was rapidly increasing during this period through natural causes, doubling about once in twenty-five years. At the same time the country was receiving enormous additions to the labor force through immigration. The potato famine in Ireland in 1846, the political disturbances in Europe in 1848, and finally the gold discoveries in California the same year, brought thousands of immigrants to this country. The first great wave of immigration took place in the decade following 1845, and con-

sisted largely of Irish, Germans, English, and French. The Irish settled for the most part in the eastern cities, while the Germans and English took farms in the central States. The colonizing movement of the far West was effected chiefly by those of native birth, who gave place to the newcomers in the eastern and central States, and pushed on to the frontier. The number of persons of foreign birth living in the United States was 2,240,535 in 1850, and 4,131,866 ten years later. Such a large infusion of foreign blood quickened the movement of the population and developed the habit of change and enterprise. The total population of the country grew from 17,000,000 in 1840 to 31,000,000 in 1860.

198. Industrial and economic changes. — The material development of this period, the spread of the factory system with its attendant growth of a distinct wage-earning class, and the improvement in the means of communication, had all served to break up the old economic levels and to introduce active elements of change. Corporations began to take the place of individual enterprises, and the first beginnings of monopolies drew forth political and industrial protest, which found expression in the platforms of the labor party and in wide-spread labor agitation. During the decade 1840–50 a wave of socialism swept over the land, based on the doctrines of the French socialist Fourier. "Phalanxes" or industrial groups were established by the dozen, of which Brook Farm was one of the most famous; and the cause of labor was almost submerged in the ambitious attempts at general social amelioration. Labor organization was confined to the formation of small local unions until 1850, when the first national union, that of the printers, was established. By the time of the Civil War it was estimated that twenty-six trades had national organizations. There was during all this period a steady improvement in the condition of the laboring classes. Wages rose generally, and while prices also increased, they did not do so in the same proportion. According to the Aldrich report, if wages and prices in 1860 be stated as 100, relative wages in

1840 were 82.5 and relative prices 98.5, indicating a great relative improvement in the economic status of the workingman. In addition to increased wages, the working classes also secured an amelioration of various political, educational, and legal conditions which had hitherto worked to their disadvantage. Thus imprisonment for debt was gradually abolished after 1823. It was only in the North, however, that these industrial changes were taking place; in the South the blight of slavery had prevented all development in industry and had condemned agriculture to stagnation.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XVI

1. Was the issue of the Continental paper money during the Revolution necessary? Was it desirable? [White, Money and Banking, 115–129; Coman, 104–110; Bolles, Fin. Hist., I, Book 1, chaps. 3, 9, 10; II, Book 1, chap. 3; Dewey, chap. 2; Sumner, Amer. Cur., 43–60.]

2. What is the meaning and origin of the expression "not worth a continental"? [White, Money and Banking, 126.]

3. Why did the States issue paper money during the years 1781–1788? [Fiske, Crit. Per., 168–186; McLaughlin, The Confed. and the Const., chap. 9.]

4. Why did not Rhode Island enter the Union at the same time as the other States? [Fiske, Crit. Period, 345; Bates, Rh. Is. and the Formation of the Union.]

5. What provision in the Constitution regulates the issue of paper money by the States? Why was it inserted?

6. Why was the First United States Bank refused a re-charter? [White, Money and Banking, 258; Coman, 154; Conant, Mod. Banks of Issue, 292; H. Adams, Hist. of U. S. of America, V, 208.]

7. Why was the Second United States Bank refused a re-charter? [White, Money and Banking, 291–314; also in Sound Currency, IV, No. 18; Conant, Mod. Banks of Issue, 302–309; Coman, 193–197; Knox, Hist. of Banking, 62–79; Sumner, Jackson, chaps. 6, 11; Dewey, 198–203.]

8. Why were there no silver dollars coined between 1806 and 1836? [Laughlin, Hist. of Bimet., chap. 4; Sumner, Amer. Cur., 103–113; Watson, Hist. of Amer. Coinage, 73–77.]

9. Why was the ratio changed in 1834? [Watson, Hist. of Amer. Coinage, chap. 5; Dewey, 210–212; as above.]

10. What were the methods of a wild-cat bank in the fifties? [White, Money and Banking, chap. 12; Kinley, Independent Treasury of the U. S.]

11. If the demand for money by the settlers in a new country is not

a correct interpretation of their needs, what is it that they want? [Walker, Money, Trade, and Industry, 82; Smith, Wealth of Nations, Book 4, chap. 1; Bullock, Mon. Hist., 74–78.]

12. What is the effect on prices of a large addition to the money supply of a country? [Any text on economics; see Index, "Money."]

13. Describe the discovery of gold in California in 1848, and its effects. [Johnson, Great Events, XVII, 188–197; Bancroft, Hist. of Pac. States, XVIII; Stillman, Seeking the Golden Fleece; Taylor, El Dorado.]

14. What caused the panic of 1857? [Coman, 242–243; Sumner, Amer. Cur., 169–187; Wright, Ind. Depressions, 56–60; Dewey, 259–264; Burton, Crises and Depressions, 282–286.]

15. Describe the social doctrines of the French socialist Fourier. How far were they accepted in America? [A. Brisbane, Social Destiny of Man; Kirkup, Hist. of Socialism, 31–40; Ely, French and German Socialism, chap. 5; Bliss, Encycl. of Soc. Ref., art. Fourier.]

16. Describe Brook Farm as a socialistic experiment. Why did it not succeed? [Noyes, Hist. of Amer. Socialisms, chap. 2; Sotheran, 148–153; Codman, Brook Farm; Bliss, Encycl. of Soc. Ref., art. Brook Farm.]

17. Who was Dorothea Dix and what were her public services? [Encycl.]

18. Describe the experiences of an immigrant to the United States about 1840–60.

19. What revolutionary disturbances were there in Europe about 1848? [Fisher, Univ. Hist., 564–570.]

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*Coman: Industrial History of the United States, 193–201.
*McDonald: Jacksonian Democracy, chaps. 7, 13, 16.
*Noyes: History of American Socialisms.
*Sotheran: Horace Greeley and other Pioneers of American Socialism.
*Watson: History of American Coinage, chaps. 5–7.
**White: Money and Banking, book 1, chap. 3; book 3, chaps. 6–13.

Aldrich: Wholesale Prices, etc. Part 1, 11–16.
—— Eighth Census, vol. on Population.
Dewey: Financial History of the United States, chap. 10.
—— Eighty Years' Progress, 435–455.
Mayo-Smith: Emigration and Immigration, chap. 3.
Schurz: Henry Clay, II, 113–127.

CHAPTER XVII

PUBLIC LANDS AND AGRICULTURE (1808–1840)

199. Importance of the public lands. — It is almost impossible to exaggerate the influence which the vast western expanse of free land has had upon the economic history of the United States. In the later days of the Confederation and the early days of the Republic it bound together by economic interests the States at a time when they would otherwise have drifted apart. Later it afforded an outlet for a growing population, which, instead of becoming denser, has spent its force in taking up new territory. The problem of over-population — that bogy of the early nineteenth century in England — had no meaning in a country where an increase of hands was the greatest need. Unemployment, the standard of living, and the rate of wages, were all solved by a recourse to the free land of the West, while the problem of immigration was mainly that of inducing foreigners to come to our shores. This abundance of land has greatly simplified economic and social problems, and has acted as a safety-valve in times of depression and panic.

200. Disposal of the land for settlement. — The early policy of the government, of land sales for the sake of revenue, gradually gave way to the second, and what has proved to be the permanent, policy respecting the public lands. This is the system of land grants for actual settlement in small lots suitable for cultivation. By the act of April, 1820, sale for credit was abandoned, and the price reduced to $1.25 an acre, while the minimum tract to be sold to one individual was reduced to eighty acres. For the next ten years the sales of public land were very steady, averaging about 1,000,000 acres yearly.

The introduction of the steamboat upon western waters, the extension of cotton culture through the Southwest, the greater demand for agricultural produce due to the growth in population, all led to a steady demand for land for actual cultivation and settlement. Nevertheless, in December, 1827, the Secretary of the Treasury reported that while more than 261,000,000 acres of land had been added to the public domain, since the organization of the government but 19,000,000 acres had been

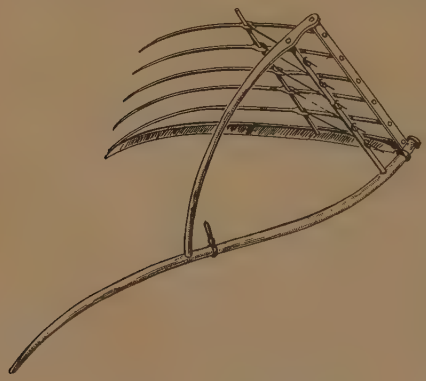
HORSE RAKE, 1818

"After the crop is cut, the swath is collected by the hand, and tied into sheaves; a small quantity of stalks still remain scattered over the surface, these are commonly collected by the hand-rake. To facilitate the latter part of the process, a horse rake has been recently invented." — Flint's *Letters from America*, 1818.

sold to individuals. At that rate it was estimated that more than five centuries must elapse before the public lands would pass into the hands of private owners. During the years from 1825 to 1832 many schemes of a most questionable character were introduced in Congress, for disposing of the lands by sale or gift, for reducing the price, or for handing over the public lands to the States for them to dispose of.

201. Speculation in western lands. — The next few years saw an outburst of speculative activity which has scarcely been equaled since in the United States. This was largely owing to the great increase in land values, the inflated condition of the currency, and the loose banking methods then prevailing. Western lands had been steadily appreciating in value for some years, and as credit and money became easier under the speculative fever of the time, they seemed a favorable

object of investment to those who were seeking an easy and rapid increase of wealth. Paper villages were laid out, lands were sold at greatly enhanced prices, often fifty times their original cost, and speculation was fanned to a fever heat. The sales of public lands swelled rapidly, amounting to 3,856,278 acres for the year 1833, and to the enormous figure of 20,074,871 acres for 1836. This exceeded all that had been sold before, since the adoption of the Constitution. Nor was the speculation confined to western lands; owing to the extension of cotton culture due to the increasing demand for, and the consequent advance in the price of, cotton — from a maximum of 13½ cents a pound in 1833 to 20 cents in 1835 — the value of southern plantations and city real estate rose enormously. The coal lands of Pennsylvania and the manufacturing cities of the East felt a similar impetus. Thus the assessed value of real estate in New York City rose from $143,732,425 in 1835 to $233,742,303 in 1836, and in Mobile from $4,000,000 in 1834 to $27,000,000 in 1837. After the panic of 1837 these prices fell even more rapidly.

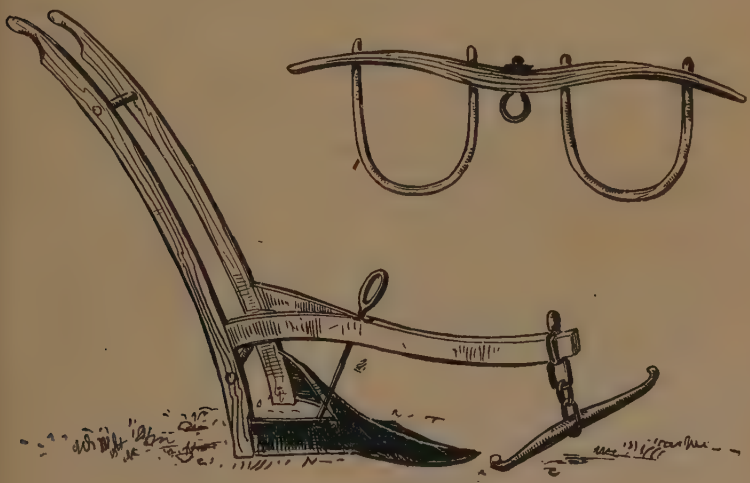


CRADLE SCYTHE, 1818

In most parts of America the crops were cut down at this time by the cradle scythe. This was a frame of wood with a row of long curved ribs projecting above and parallel to a broad scythe-blade, for cutting grains and laying them in a straight swath. The cradle acted as a gathering rake, and deposited the grain in an even pile with every swing of the scythe.

202. Extension of farm area. — The settlement of the fertile country about the Great Lakes proceeded rapidly after the construction of the Erie and other canals had provided an outlet to the Atlantic ports for western produce. Between 1820 and 1840 the population of Ohio increased from 581,295

to 1,519,467; that of Indiana from 147,178 to 685,866; of Illinois, from 55,162 to 476,183; and of Michigan, from 8,765 to 212,267. With the extension of cultivated area the production of the cereals increased enormously; most of it, however, found a market in the growing Southwest, and the lake grain trade did not begin to expand until the end of this period. As late as 1835 Ohio was the only State in the



PLOW AND NECK YOKE, 1832

"The plow is different in its construction from that used in Germany, and the oxen are attached to it by a very peculiar yoke, which consists of a long, thick, crooked piece of wood, which is laid horizontally over the necks of the two oxen, with two bows underneath, through which the heads of the animals are put." *Travels in the Interior of North America*, by Maximilian, Prince of Wied, 1832.

West exporting grain direct to the Atlantic Coast. The first shipments of grain from Chicago consisted of 78 bushels of wheat in 1838, while the first shipment from Wisconsin was not made until three years later. In 1840, when this crop first appeared in the census, the production of Indian corn amounted to 377,531,875 bushels, and of wheat to 84,823,272 bushels. The population of the southern slave States had

also increased, although not quite so rapidly as the West, from 1,200,484 in 1820 to 2,659,085 in 1840; the production of cotton in the latter year was 790,479,275 pounds, or six times the product of 1820. In New England attention began for the first time on a large scale to be directed to the cultivation of fruit, which up to that time had been very poor,[1] and to market gardening; by 1840 the capital invested in these branches was almost $3,000,000, and the annual returns somewhat more.

203. Improvements in farm implements. — Of far-reaching influence on the extension of cereal production throughout the flat prairie regions of the central West was the invention of various mechanical devices for plowing, cultivating, mowing, reaping, and threshing the crops. The cast-iron plow was in general use by 1825. During the next decade the use of threshing machines spread with great rapidity, and by 1840 comparatively little grain was threshed in any other way. The first patent for a mowing machine was granted to William Manning, of New Jersey, in 1831, and for a reaping machine to Obed Hussey, of Baltimore, in 1833, which cut grain as fast as eight persons could bind it. In 1834 a patent was issued to Cyrus H. McCormick for an improved reaping machine for cutting grains of all kinds. Only limited success attended the early introduction of these machines, and it was not until after 1840 that they exerted their transforming influence on western agriculture. Other labor-saving implements may be mentioned here, though the beginnings of some of them date back

[1] Mrs. Trollope in her *Domestic Manners of the Americans*, writes as follows of her experiences in Ohio: "All the fruit I saw exposed for sale in Cincinnati was most miserable. I passed two summers there, but never tasted a peach worth eating. Of apricots and nectarines I saw none; strawberries very small, raspberries much worse; gooseberries very few and quite uneatable; currants about half the size of ours, and about double the price; grapes too sour for tarts; apples abundant, but very indifferent, none that would be thought good enough for an English table; pears, cherries, and plums, most miserably bad."

to the previous century; such were the cultivators, horse-hoes, grubbers, drills, and seed-sowers.

First McCormick Reaper, 1831

The first reaper built by Cyrus H. McCormick, of Virginia, was made at a blacksmith's shop in the Shenandoah valley. These reapers enabled one man with a team of horses to cut as much grain as twenty men with cradle scythes. McCormick did not take out his first patent until 1834.

204. Live stock. — The cattle industry of the United States has always flourished on the frontier, and during this period made steady progress in the West. The first fat cattle that ever crossed the Alleghanies were driven from Ohio to Baltimore in the spring of 1805. This proved the beginning of a profitable trade, and, until the railroads began to transport them directly to the eastern market, western cattle were fattened on corn in Ohio during the winter months and then driven eastward in the spring. About 1832–36 a general interest in the improvement of live stock began to be manifested by farmers, largely

as a result of the exhibitions at county fairs which had begun about 1810, but were now revived and improved. Durhams, short-horns, Herefords, Devons, and other improved breeds were imported and crossed with the common cattle of the United States, resulting in a great improvement in size, early maturity, and quality of beef.

The first importation of merino sheep had been made in 1793, but it was not until the Embargo forced the people to produce their own clothing that general attention was directed to the raising of fine-wool sheep. Societies were formed in Kentucky and Ohio to improve the breeds by the importation of pure merinos, southdowns, and other blooded stock, and great improvements were effected in breeding both for mutton and for wool. These States, with western New York, remained the seat of the industry until after the Civil War. Large numbers of swine were also raised, especially in Ohio, Kentucky, and Tennessee; Cincinnati was the center of the meat-packing industry until displaced some years later, in 1861, by Chicago. The following table shows the number of live stock in the United States in 1840:

Neat Cattle	Sheep	Swine
14,971,586	19,311,374	26,301,293

205. Character of agriculture. — American farming was still characterized by the wasteful and exhausting methods of cropping without fertilizing that prevailed in colonial times. This was caused partly by the fertility of the soil and the abundance of free land, and partly by the unsettled nature of farming and the unwillingness to sink capital in improvements. "It seldom happens," wrote Tocqueville in 1840, "that an American farmer settles for good upon the land which he occupies; especially in districts of the far West he brings land into tillage in order to sell it again and not to farm it." The

same thing was remarked by another traveler[1]: "There is scarcely any such thing in New England and New York as local attachment. . . . Speaking generally, every farm, from Eastport in Maine to Buffalo on Lake Erie, is for sale. The owner has already fixed a price in his mind for which he would be willing, and even hopes to sell, believing that with the same money he could do better for himself and his family by going still farther West. Thus, to lay out money in improvements is actually to bury what he does not hope to be able to get out of his farm again, when the opportunity for selling presents itself." So long as land was held only as a speculation, in order to sell again, farming could not be brought to a very high state of development. American agriculture has suffered from this fact down to the present time.

MOWING BY SCYTHE

The scythe was a great advance over the sickle and was universally used in the United States until the invention of the reaper. It is still in common use on small farms or on rough ground. The common hay scythe consists of a slightly curved broad blade mounted on a bent wood bar or snath to which two handles are attached. The mowing is done with an easy swing, which lays the hay in a continuous though not very even swath.

SUGGESTIVE TOPICS AND QUESTIONS. CHAP. XVII

1. What were the methods and implements in use before the introduction of the cast-iron plow, the reaper, mower, thresher, and other improved implements mentioned? [Eighty Years Progress; Eighth Census

[1] J. F. W. Johnston, Notes on North America, p. 163.

(1860), vol. Agric., Intro., xi-xxiv; Twelfth Census (1900), X, 352–364; Holmes, Progress of Agric. in U.S.]

2. Was there any connection between the different tariffs and the sheep-raising industry? Was there a duty on cattle? Why on one and not on the other? [Taussig, Tar. Hist., 239, 257, 292, 330; Lewis, Our Sheep and the Tariff; Grosvenor, Does Protection Protect?]

3. Describe the early introduction of improved merino sheep into this country. Is sheep-raising successful in the United States to-day? [Eighth Census (1860), vol. Manuf., 26–32; Coman, 182.]

4. Would you call a period of advancing prices and speculative activity, such as existed in 1834–7, "good times"? [Dewey, 224–231.]

5. What proportion of your class-mates to-day live in the same State or county in which their parents were born? What does this seem to indicate as to local attachment? Has it any effect on good government, in our cities or elsewhere?

6. What were some of the schemes mentioned in sect. 200 for disposing of the public lands?

7. Was the wish to own a home or the hope of a rise in the value of the land, the main reason, in your opinion, for the taking up of the western lands?

8. What was the Yazoo Land Company, and what were the scandals connected therewith? [Haskins, Yazoo Land Co.; Roosevelt, Winning of West, IV, 188–193.]

9. In what States were the land sales greatest? What was the growth of population during the decade 1830–40 in these States? Does this show anything as to whether the lands were bought for actual settlement?

10. What effect did the sale of land to speculators have upon its actual settlement? [Kettel, in Hunt's Merch. Mag., XI, 112.]

11. Do the governments of other countries own land? Would it have been better for the United States to have retained the ownership of most or all of the land, instead of giving it away? [H. C. Adams, Sci. of Fin., 247–254; Bastable, Pub. Fin., 169–190; Marshall, Princ. of Econ., 500, n. 2; Bullock, Introduction, 16; Hart, in Quart. Journ. Econ., I, 169.]

12. What is the policy of Australia in disposing of her public domain? [Lloyd, Newest England, chaps. 7–9.]

13. Are the statements made in sect. 205 true to-day to your knowledge?

14. What did Henry George believe as to the justice of private property in land? What is the socialists' position? [George, Progress and Poverty, Book 7; Simonson, A Plain examination of Socialism, 98; de Laveleye, Socialism of To-day, chap. 11; Gide, Pol. Econ., 455, 593.]

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—— Eighth Census (1860), vol. on Agriculture, Intro.
*Flint: One Hundred Years of American Agriculture in Eighty Years Progress, 27; also in An. Rep. U. S. Dept. of Agric., *1872*, p. 280; and in First An. Rep. Mass. Bd. of Agric., *1854*.
**Hart: The Disposition of Our Public Lands, in Quarterly Journal of Economics, I, 169–183; also in Practical Essays on American Government, 233–258.
*McMaster: History of the People of the United States, II, 476–482; III, 89–146; V, 170.]
**Sato: History of Land Question of the United States, 1–160, 385–409.

Colton: Life, Correspondence, and Speeches of Henry Clay, I, chap. 20; VI, 56–85.
Donaldson: The Public Domain, chaps. 7, 8, 10, 13.
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Woolsey: First Century of the Republic, 180.

CHAPTER XVIII

THE APPLICATION OF MACHINERY TO AGRICULTURE (1840–1860)

206. Industrial expansion. — The period upon which we are now entering was one of great material prosperity and expansion in all lines of industry. This prosperity was the result of a combination of diverse causes, among which may be enumerated the application of machinery to agriculture, the rapid development of the West, the discovery of gold in California, the extension of railroads, famine and wars abroad, the repeal of the English corn laws, the expansion of our foreign commerce, and the enormous growth of manufactures. As a result of the Irish potato famine in 1846, the revolutionary disturbances in Europe in 1848, and the discovery of gold in California in the same year, the number of immigrants into the United States increased by leaps and bounds: from 80,289 in 1841 the annual arrivals jumped to 234,968 in 1847, and 427,833 in 1854, a figure that was equaled only once in the next twenty-five years. The increase of railroad mileage from 2818 in 1840 to 30,626 in 1860 was not only in itself a wonderful achievement, but was also of enormous importance in opening up the western country. The repeal of the English corn laws in 1846 opened a market for our surplus grain, while the expanding British manufactures, as well as those of our own eastern States, absorbed increasing amounts of cotton and other raw materials. These factors, together with the lowering of the tariff in 1846, led to an immense increase in our foreign commerce, which trebled between 1830 and 1860.

207. The thresher and reaper. — Far-reaching as were these changes on the side of demand, the improvements that were

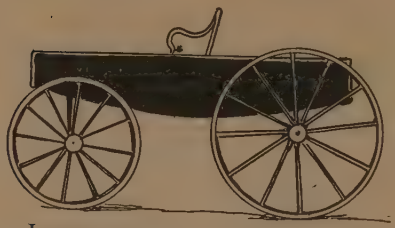
made during this period in producing food and raw materials were still more revolutionary. The threshing machine had come into general use by 1840; but improvements continued to be invented: up to 1860 the number of patents — 354 — granted for threshing machines was larger than had been issued for any other instrument except the plow and water-wheel, and perhaps grain harvesters and corn-planters. At first, the machine merely threshed, but about 1850 separators were added, which separated the grain from the chaff and straw. By 1860 steam-threshers were introduced, but horse power was still generally used.

During the first third, or perhaps half, of this century, hay and grain were cut with a scythe (or sickle) and raked with a hand-rake. Using these tools a man could cut and rake an acre a day, working much harder than the average farmer of to-day. In fact, until 1850 nearly all the operations of agriculture, except that of threshing the grain, were performed by manual labor. The prototype of the *revolving* hay-rake was invented in 1824 and perfected about 1856, and in 1833 the reaping machine was first patented. The common use of the practicable reaper and mower, however, dates from about 1850. It was given a great impetus by the success of American machines at the World's Fair in London in 1851 and at an exhibition near Paris four years later. "The triumph of the American reapers," said the official report at London, "worked a new era in agriculture." At the Paris exhibition a trial of mowing, reaping, and threshing machines was made, and of the results a correspondent of the *New York Tribune* wrote: "Six men were set to threshing with flails at the same moment that the different machines commenced operations, and the following were the results of half an hour's work:

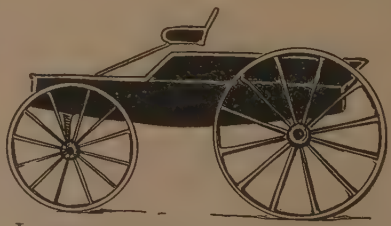
"Six threshers with flails ..... 60 liters of wheat
Belgium thresher ..... 150 liters of wheat
French thresher ..... 250 liters of wheat
English thresher ..... 410 liters of wheat
American thresher ..... 740 liters of wheat"

In the trial of reapers the following was the result in a field of oats: an Algerian machine cut an acre in 72 minutes; an English machine in 66 minutes; and an American in 22 minutes.

208. Other improvements. — The application of machinery to the work of harvesting marked an epoch in American agriculture; there was now no practical limit to production through inability to gather the crop. But the use of machines in harvesting was supplemented, though in a lesser degree, by their application to the cultivation and tillage of the crop, particularly of Indian corn. A variety of cultivators, horse-hoes, seed-drills, and similar implements enabled the farmer to substitute animal power for hand culture. In a new country like the United States, where labor was still scarce and high, labor-saving machines were indispensable. The chief characteristics of the American machines were, as they still are, lightness, simplicity, and cheapness, in all of which qualities they far excelled those of England and Europe. By 1860 the total value of agricultural implements manufactured in the United States was $17,802,514.



IMPROVEMENT OF THE WAGON. I
The plain springless box wagon was introduced in 1810.



IMPROVEMENT OF THE WAGON. II
In 1820 the seat was put upon a spring.

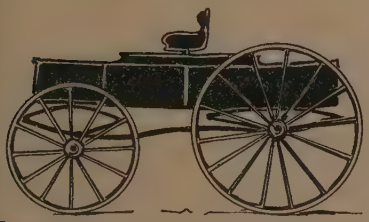
During this period, too, commercial fertilizers were introduced into the United States, and the application of chemistry to agriculture, first reduced to a science by Liebig, was put in practice.

But great as was the progress in cultivating, harvesting, and cleaning the grain, it was still greater in grain transporta-

tion. The most remarkable progress was made during this period by the western States (Ohio, Indiana, Illinois, Michigan, and Wisconsin). In these five States between 1850 and 1860 the number of miles of railroad grew from 1275 to 9616; the production of corn, oats, and cattle increased over 50 per cent., and of wheat and potatoes 100 per cent. At the same time the cash value of the farms in these States almost trebled. The rivers and canals were quite inadequate to transport this increased production, which was made possible only by the rapid extension of railroads.

IMPROVEMENT OF THE WAGON. III
The thorough brace was placed under the body of the wagon in 1825.

209. Benefits of farm machinery. — The saving effected by the use of these improved implements was estimated in the census of 1860 as equal to more than one half the former cost of working. "By the improved plow, labor equivalent to that of one horse in three is saved. By means of drills two bushels of seed will go as far as three bushels scattered broadcast, while the yield is increased six to eight bushels per acre; the plants come up in rows and may be tended by horse-hoes. . . . The reaping machine is a saving of more than one third the labor when it cuts and rakes. . . . The threshing machine is a saving of two thirds on the old hand-flail mode. . . . The saving in the labor of handling hay in the field and barn by means of horse-rakes and horse-hayforks is equal to one half." But



IMPROVEMENT OF THE WAGON. IV
In 1825 the elliptical spring was introduced over the two axles.

the real gain to agriculture by the use of these machines cannot be measured by merely noting the increased area that can be cultivated by a given labor force, or the saving in labor cost. It consists rather in the saving of time, which permits a large crop to be harvested at the moment of maturity, without loss by delay or exposure. The whole labor force of the United States in 1860 would probably have been insufficient to have harvested in season the crops of that year by the methods of a generation previous.

The expansion that was taking place in agriculture during this period can best be seen in the following table:

AGRICULTURAL EXPANSION, 1840–1860

PRINCIPAL AGRICULTURAL PRODUCTS (IN MILLIONS)

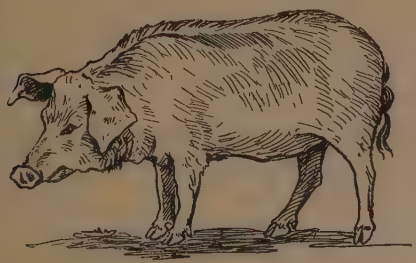
Product	1840	1850	1860
Improved farm land, acres	—	113.0	163.1
Corn, bushels	377.5	592.0	838.8
Wheat, bushels	84.8	100.4	173.1
Oats, bushels	123.0	146.5	172.6
Rye, bushels	18.6	14.1	21.1
Buckwheat, bushels	7.3	8.9	17.5
Barley, bushels	4.1	5.1	15.8
Potatoes, bushels	104.2	104.0	153.2
Hay, tons	10.2	13.8	19.0
Butter, lbs	—	313.3	459.6
Cheese, lbs	—	105.5	103.6
Wool, lbs	35.8	52.5	60.2
Cotton, bales of 400 lbs	1.5	2.4	5.3
Tobacco, lbs	219.1	199.7	434.2
Rice, lbs	80.8	215.3	187.1

210. Live stock. — There was no improvement in live stock during this period such as had marked the previous one. Perhaps the most important event was the importation into Ohio of the Percheron stallion Louis Napoleon, from which dates a great improvement in the draft horse. Before this the

most prized animals as beasts of burden, in addition to mules, were the Conestoga horses, which were early used to draw the Philadelphia-Pittsburg stage-coach. Some attention had been given to breeding trotting horses and several importations made; a great sensation had been occasioned in 1816 when "Yankey" trotted a mile under the saddle at the Harlem race course in New York City in 2.59, but religious sentiment in the North was against speed tests. Trotting did not become a popular pastime until after the introduction of macadam pavements. Up to 1840 the buggy was practically unknown, the common mode of travel being on horseback.

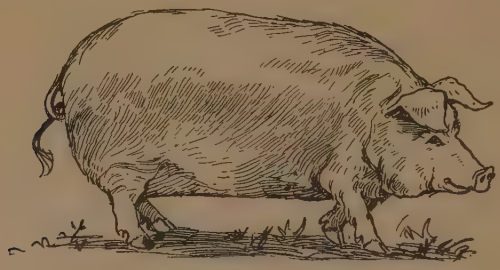
IMPROVEMENT OF THE HOG. I
The Southern pine woods hog, which ranged wild in the woods at all seasons, developed fleetness of foot, coarse, large bones, and a thick, hard coat.

The number of sheep remained almost at a standstill, while the increase in neat cattle and swine did not keep pace with the growth of the population. All of these animals were raised chiefly for slaughtering. While the pork-packing industry did not assume large proportions until the decade of the Civil War, in 1860 over 400,000 hogs were slaughtered annually at Cincinnati and 230,000 at Chicago. An improvement was introduced into the dairying business during this period, which in time worked a revolution in that branch of farm work. Up to 1850 all the butter and cheese was made on the farm, but in the next year the associated system



IMPROVEMENT OF THE HOG. II
The Western beech nut hog shows an improvement, but was coarse, long-legged, large-boned, slab-sided, and flab-eared.

of dairying known as the American system was inaugurated by the invention of the cheese-factory, of which twenty-one were built by 1861. Its complete development, however, belongs to the next period.



IMPROVEMENT OF THE HOG. III
The improved Suffolk shows the desirable qualities of a hog — small bones, short legs, round barrel, thin coat, ready fattening qualities, and sluggishness.

The following table shows the increase in live stock from 1840 to 1860:

LIVE STOCK IN THE UNITED STATES, 1840–1860.

Live stock (in millions)	1840	1850	1860
Horses and mules	4.3	4.8	7.3
Neat cattle	14.9	18.2	25.6
Sheep	19.3	21.7	22.4
Swine	26.3	30.3	33.5

211. Changes in farming. — One of the effects of all these improvements in harvesting and marketing the crops was a greater specialization in farming. The transfer of grain production to the western States, brought about by improved methods of transportation, had begun the change in New England agriculture which [illegible] completely transformed it. Market gardening increased rapidly in New England and the

middle Atlantic States, while a little further West orchard products received greater attention. The two together increased in value from $3,000,000 in 1840 to $35,800,000 in 1860. On the western farms there was greater specialization in cereal production, which permitted the use of more expensive machinery and more capital.

The number of planters and farm laborers was increasing more rapidly than the number of independent farmers, seeming to indicate, even thus early, the introduction of capitalistic methods into agriculture. The average size of the farms in the United States declined from 203 acres in 1850 to 194 acres in 1860, owing probably to the large number of settlers taking up minimum claims on the public lands. The cotton and sugar plantations of the southern States, as Alabama, Arkansas, Florida, Louisiana, Mississippi, and Missouri, showed an increase in average size; with the exception of California, the southern States were the only ones in which there was any considerable number of farms of over 1000 acres. The total values produced on the farms at each decennial date was estimated at 580 million dollars in 1840, 800 million in 1850, and 1250 million in 1860. In spite of the rapid progress in manufactures and commerce, the country still remained predominantly agricultural, over 40 per cent. of the population being dependent upon agriculture.

212. The grain trade of the United States. — Until the building of railroads in the western States the grain trade developed very slowly; the first shipment of wheat from Chicago was not made until 1838. With the completion of the system of canals and later of railroads, the grain resources of the lake basin were opened up and the trade greatly stimulated, so that by 1860 the total shipments of grain and flour eastward from ports on Lake Michigan alone amounted to 43,211,448 bushels. During the period 1840–60 the production of grain in the northwestern States was estimated to have increased from 218,463,583 to 642,120,366 bushels. Of this, however, only a very small portion was exported; on an average not over 10

per cent. The following census table shows the increase in the value of the grain exports:

EXPORTS OF GRAIN, 1823–1863

Years	Aggregate Value of Exports of Grain	Percentage of Increase
1823–1833	$67,842,211	—
1833–1843	73,303,440	8.0
1843–1853	198,594,871	170.9
1853–1863	512,380,514	158.0

Great as this increase was in the last two decades, especially after the repeal of the British corn laws in 1846, the produce of a single State like Illinois far exceeded the total exports. The real development of the export grain trade belongs to the next period. Practically all of the exports were now made via the Atlantic ports, the New Orleans grain trade having entirely disappeared; in 1860 only 2189 bushels of wheat were shipped from that port. On the other hand, the southern exports of cotton — which constituted about one half of our total exports in value — of sugar, tobacco, and rice, had grown prodigiously.

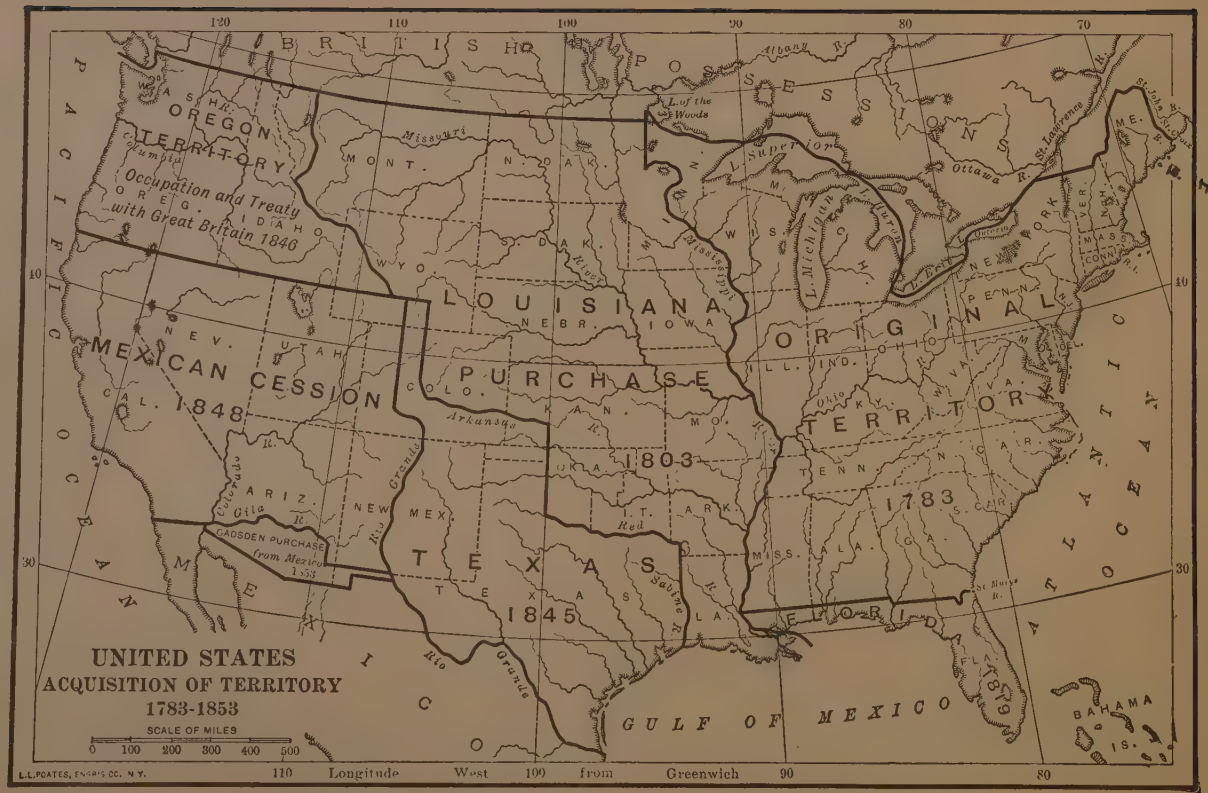
213. Home consumption of products. — It is evident that when only 4 per cent. of the cereal production of the country, or 40 million bushels of grain out of a total crop of 1000 million bushels, is exported, the home market is infinitely more important than the foreign. And yet the greatest interest has always properly enough attached to the export trade, for the price at home of wheat, cotton, and other agricultural exports has been determined by the price ruling in Europe, and more particularly in England. The vast growth of manufactures in the eastern States created a demand in that section for western produce; in 1863, Governor Andrew of Massachusetts estimated that the consumption of western agricultural products in New England amounted to $50,000,000 yearly.

On the other hand, the devotion in the southern States to

the cultivation of a few staple crops — cotton, tobacco, sugar, and rice — created profitable home markets for the grain of the Northwest. Much of the corn, too, was not consumed as such, but was fed to stock, especially swine, which were then more easily marketed than the original product. The increase in the tonnage of the lakes, from 76,000 tons in 1845 to 391,220 in 1860, and of railroad mileage, from 2818 miles in 1840 to 30,635 in 1860, sufficiently indicate the growth of the internal trade of the country.

214. Pre-emption of the public lands. — The rapid peopling of the West and the settlement of the public domain made necessary a better method of disposing of the land to actual settlers than had prevailed. Under the previous system of sales many of the most desirable tracts were bought and held by speculators or for investment. As the incoming population pressed in, it tended in its haste to pass beyond the surveyed lands and to settle in the wilds before they had been opened to settlement. For the benefit of those already upon the soil and of future residents the pre-emption system was gradually developed. "Pre-emption is a premium in favor of, and condition for, making permanent settlement and a home." "The essential conditions of pre-emption are actual entry upon, residence in a dwelling, and improvement and cultivation of a tract of land." It was not a free grant of land, but simply a privilege to the settler of purchasing at the established price the land upon which he had settled, without competition of any sort. The first general pre-emption act was passed in 1830 as a temporary measure and was continued each year until superseded by the permanent law of 1841. The policy of disposing of the public lands primarily for homes had now been definitely adopted. Except during the panic of 1857, the sales during this period were steady and kept pace with the settling of the West, averaging about three and one half million acres a year.

215. Grants of land. — In addition to its use for purposes of settlement, the public domain of the United States has also



Territorial Growth of the United States, 1783–1853

been employed to encourage internal improvements, for educational purposes, and in direct gifts to individuals and States. By the ordinance of 1785 it was provided that one thirty-sixth of the public lands should be reserved for the support of the common schools, and since 1848 one eighteenth has been so reserved in all States entering the Union after that date. Beginning with 1841, the lands were recklessly alienated by Congress; during the period 1841–60, 65,701,312 acres were granted to individuals, 105,131,877 acres were granted to States for purposes other than internal improvements, of which the largest single gift was that in 1849 of all the "swamp and overflowed lands" within the limits of any State; and 29,820,337 acres were granted to States and corporations for internal improvements. Of a total of 269,406,415 acres disposed of during this twenty-year period, only 68,752,889 acres were sold, the rest being generously — or improvidently — given away by Congress.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XVIII

1. Trace the changes in the agricultural products of some typical State, as Massachusetts, New York, Ohio, Iowa. [Census vols. on Agric., 1850–1900.]

2. Trace the westward movement of agriculture in the United States since 1850. [Twelfth Census (1900), vol. Agric., Part 1, 37.]

3. Is the price of wheat and cotton in the United States fixed by the price offered in London or New York? Why? [Bullock, Introduction, 185; Marshall, Principles, 403.]

4. What objections can you think of to the introduction of improved farm machinery? [M. B. Bateman, in Ohio Agric. Rep., 1869; Quaintance, 40; Rep. Ind. Com., X, 132, 256.]

5. Does the introduction of farm machinery increase or reduce the number of farm laborers? [Quaintance, 29–45; Bryn. chap. 16.]

6. Why was Cincinnati the seat of the pork-packing industry prior to the Civil War? Why does Chicago now hold first place? [Adams, Com. Geogr., 80.]

7. What was the attitude of foreign nations to the reception of our wheat and flour during this period?

8. The per capita consumption of wheat in the United States was seven bushels in 1860. What is it to-day? Has the amount raised

kept pace with the increase in population? What do the figures show?

9. What was the quality of the fruit in the United States about 1840? How has it been improved? [Mrs. Trollope, Domestic Manners of the Americans, 88; Bailey, Plant Breeding, 4th ed., 227–314.]

10. What is the best trotting record to-day? Was "Yankey's" performance remarkable? [World Almanac.]

11. What were the British corn laws? Why were they repealed? [Johnson, Great Events, XVII, 11–24; Levi, Hist. of British Commerce, Part 4, chap. 4; Palgrave, Dictionary of Pol. Econ., art. Corn Laws.]

12. Who was Richard Cobden, and what were his public services? [J. Morley, Life of Richard Cobden; Palgrave, Dict. of Pol. Econ.; Bliss, Encycl. of Soc. Ref.; Encycl.]

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—— Reports U. S. Dept. of Agric., 1850, p. 551; 1853, p. 50; 1862, pp. 66–73; 1866, p. 498.
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CHAPTER XIX

SLAVERY AND THE SOUTH

216. The development of the South. — While the country as a whole had made marvelous industrial progress during this period, the benefits were confined largely to the North and West. The great advances in manufactures, in agricultural improvements, and in commerce had scarcely affected the South. The reason for this industrial backwardness was the institution of slavery, and to a fuller discussion of slavery as a system of labor we must now turn. Two thirds of the population and a still greater proportion of the wealth of the country were in the northern States in 1860. Of the $3,736,000,000 of wealth produced in 1859, over $2,818,000,000 came from northern farms and factories. By far the greater part of the manufacturing and mining industries of the country were situated there. In fact, the South had lagged far behind the North in the industrial advance of the previous half century. "The whirl and rush of this progress encompassed the South on every side . . . Yet alone in all the world she stood unmoved by it; in government, in society, in employment, in labor, the States of the South, in 1860, were substantially what they had been in 1810, when the abolition of the slave-trade had impressed upon their development the last modification of form of which it seemed susceptible."

217. The growth of slavery. — With the increased demand for cotton, the cotton belt had gradually spread westward until in 1860 it stretched from the Atlantic across the southern States and over the greater part of Texas. At the same time the production of cotton had almost trebled between 1840 and 1860. Hand in hand with this extension of cotton territory

COTTON PICKING

Cotton picking began about the first of August in the eastern States and continued until the middle of December in the west. The field had to be gone over again and again, as only the ripened blooms were picked each time. This was a tedious but not laborious task, and employed women and children as well as men. An average hand would pick about 200 lbs. a day, while some skilled pickers reached as high as 400 or 500 lbs. a day.

and of production, had proceeded the growth in the number of slaves, from 677,897 in 1790 to 2,009,043 in 1830 and 3,953,760 in 1860. How dependent the growth of cotton was upon the extension of slavery can easily be seen by noting the concentration of slaves in the cotton-growing States. In 1840 over two thirds of the slave population were in the ten cotton-growing States, while in 1860 nearly three fourths were to be found there. Of this large number a considerable proportion had been added by an illicit slave-trade with Africa, but the greater part was the natural increase of the slave population. Slave-breeding was carried on in the border States of Virginia, Maryland, and Kentucky, where there was diminishing opportunity for negro employment, resulting in a vigorous slave-trade with the cotton-growing States. Olmsted calculates that the average importations of slaves into seven of the southern States during the decade 1850–1860 was about 25,000 annually.

218. Nature of slavery. — Slavery is essentially a system of forced labor; the worker does not reap the reward of his toil and is consequently less interested in its results. Under a system of free labor the full returns of his labor belong to the laborer; the motive to exertion is self-interest instead of fear, and consequently the diligence and application are many times greater. On the other hand, the whole fruit of the slave's toil belonged to his master, who had to make in return only a small outlay for maintenance. How far the small running expenses offset the meager returns from slave labor was the economic problem involved in the system of slavery. Was it more remunerative to the slave-owning population than a system of free hired labor, quite irrespective of the rights or interests of the slaves? Southern writers before the Civil War insisted that the prosperity of the South was bound up in the "peculiar institution," and that to destroy slavery was to ruin southern industry; as a matter of fact, nearly nine tenths of the cotton was raised by slave labor. The following quotation from a speech of Governor Hammond, of South Carolina,

himself a violent defender of slavery, states fairly the enlightened southern view on this point about 1850: "I agree that as a general rule it must be admitted that free labor is cheaper than slave labor. It is a fallacy to suppose that ours is unpaid labor. And I have no hesitation in saying, that if I could cultivate my land on these terms, I would without a word resign my slaves, provided they could be properly disposed of. But the question is whether free or slave labor is cheapest to us in this country, at this time, situated as we are. And it is to be decided at once by the fact that we cannot avail ourselves of any other than slave labor."

219. Advantages of slave labor. — There were certain surface advantages in a system of slavery. After his original investment, the slave-holder paid only the cost of maintaining his slaves and then possessed himself of their entire output. As a result of his absolute control over his slaves, the owner could direct, organize, combine, and move them as he saw fit for the attainment of his ends. On the other hand, in order to utilize to the utmost these advantages, those crops had to be cultivated which would permit of their application in the highest degree. Of all crops cotton conformed most perfectly to the conditions necessary to a profitable use of slave labor. Cotton culture was very simple, requiring few tools and only routine work. Furthermore, it gave employment for nine months in the year, so that the slave was idle very little of the time. And, most important of all, it permitted the organization of labor on a large scale; a single slave could not cultivate more than five or six acres (as compared with thirty or forty acres in the case of corn), and they could therefore be more compactly massed than in the case of cereal crops. Owing to their ignorance and lack of versatility it was possible to employ the negroes only on staple crops which called for mechanical labor. The cultivation of cotton, which met these requirements in a high degree, firmly entrenched slavery and caused its rapid extension.

220. Defects of slave labor. — That the negro slave, at best only a generation or two removed from African barbarism,

should have remained below the industrial standard of the white man, with his centuries of training, was natural. When to inherited incapacity are added the defects of the system of slavery, one cannot feel suprised at the inferiority of slave labor. Since his labor was forced, the slave gave it reluctantly; he put as little strength and earnestness into his work as was compatible with safety from flogging. Olmsted concluded that slaves were hardly one half as efficient as free laborers. This

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SORTING COTTON

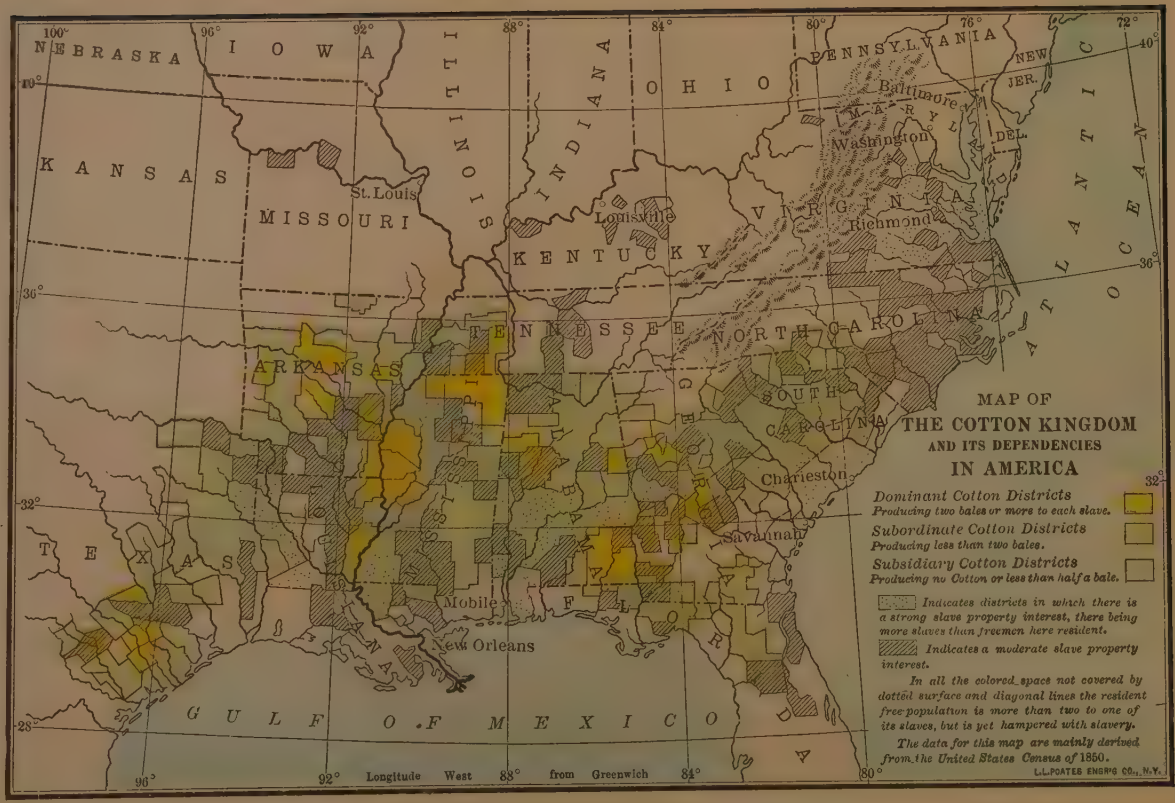
After being brought from the field the cotton is dumped in a shed, on the larger plantations, where it is sorted and classified according to the length of the staple. It is then ginned in bales. When cotton is bought in the bale, the purchaser always samples it by taking out a bit of the cotton.

disinclination to work, and the frequent shamming it led to, necessitated the use of highly paid overseers, which tended to offset the cheapness of the slave labor. Another characteristic was its ignorance, clumsiness, and wastefulness. Only the heaviest and simplest tools could be used; improved implements and machinery and fine live stock could not be entrusted to the slaves on account of their wasteful and

indifferent destruction of capital. The inefficiency of slave labor as compared with the responsible and intelligent free labor of the North was thus greatly enhanced. As it was impossible to introduce improvements in methods of agriculture or labor-saving devices into the South, this section of the country tended continually to fall farther behind the rest of the nation in the relative production of wealth. Finally, the lack of interest, of elasticity, and of versatility of slave labor confined the southern States to a few staple agricultural crops, and entirely prevented any diversification of industry or the rise of manufactures.

221. King cotton. — There was, as we have seen, a growing concentration in the South upon the cultivation of cotton. This movement was greatly stimulated by the great advance in the price of that staple from less than six cents a pound in 1845 to nearly fourteen cents in 1857. In the decade 1850–60 the production per inhabitant in the southern States of every important cereal product, of cattle and swine, even of the products peculiar to the slave States, as flax, rice, and sugar, fell off absolutely, while in the production of tobacco the increase was relatively less than in the northern States. In the case of cotton alone there was a relative as well as an absolute gain; it more than doubled in the twenty years, from 1,976,000 bales in 1840 to 4,675,000 in 1860. It is evident that almost the entire labor force and capital of the South were being directed into the one channel, the production of cotton. There was indeed truth in the statement so often made, that "Cotton is King." Seven eighths of the world's supply of that staple was grown in the South. The expanding economic demand for the one staple which could be grown under slavery caused an extension of the slave system and entrenched it still further. This, in turn, had yet other consequences of great influence upon the South.

222. The plantation system. — Under slavery the large plantation system was almost a necessity. Both the nature of the crop and the character of the labor rendered cultivation


MAP OF
THE COTTON KINGDOM
AND ITS DEPENDENCIES
IN AMERICA
Dominant Cotton Districts
Producing two bales or more to each slave.
Subordinate Cotton Districts
Producing less than two bales.
Subsidiary Cotton Districts
Producing no Cotton or less than half a bale.
Indicates districts in which there is a strong slave property interest, there being more slaves than freemen here resident.
Indicates a moderate slave property interest.
In all the colored spaces not covered by dotted surface and diagonal lines the resident free population is more than two to one of its slaves, but is yet hampered with slavery.
The data for this map are mainly derived from the United States Census of 1850.
L.L.POATES ENGR'G CO., N.Y.
NEBRASKA
IOWA
ILLINOIS
INDIANA
OHIO
PENNSYLVANIA
NEW JER.
MARYL.
DEL.
KANSAS
MISSOURI
St. Louis
Louisville
KENTUCKY
VIRGINIA
Baltimore
Washington
Richmond
TENNESSEE
NORTH CAROLINA
SOUTH CAROLINA
ARKANSAS
Charleston
Savannah
TEXAS
Mobile
FLORIDA
New Orleans
GULF OF MEXICO
ATLANTIC OCEAN
100°
96°
92°
88°
84°
80°
76°
72°
40°
36°
32°
28°
Longitude West from Greenwich

on a large scale the most economical. Intensive methods of farming were an impossibility under the indifferent and wasteful slave system. Consequently, the colonial method was persisted in, of cropping a piece of land until it was exhausted and then moving on to a fresh piece. Such a system required practically unlimited quantities of new and fertile lands; the

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COTTON LEVEE AT NEW ORLEANS

Beginning about the first of September, the cotton is picked; after being ginned it is sent to the interior markets for sale. The cotton bought for export is then sent to the seaports, whose wharves are loaded with bales from October to January. New Orleans is one of the principal cotton seaports.

need of new lands for cotton-growing was indeed an important factor in the effort to widen our boundaries by the inclusion of Texas, Mexico, and the lands to the southwest. This method involved at once an enormous waste of natural resources and a rapid exhaustion of the soil. In every southern State there were enormous tracts of exhausted and abandoned cotton lands;

in fact, the uncultivated land far exceeded the cultivated. The following table[1] shows the difference in this respect between the different parts of the country:

AGRICULTURAL DEVELOPMENT IN FREE AND SLAVE STATES

	Free States and Territories	Border States (Ill., Md., Ky., and Mo.)	Slave States
Improved land (acres) .	88,730,678	17,547,885	56,832,157
Unimproved land (acres)	72,983,311	27,474,315	143,644,192
Total quantity (acres) .	161,713,989	45,022,200	200,476,349
Cash value	$4,091,818,132	$702,518,382	$1,850,708,493
Average value per acre	$25.30	$15.60	$9.28
Agricultural implements value.....	$142,077,802	$21,068,903	$82,971,438
Live stock, value.....	$574,067,208	$133,484,109	$381,778,598

223. Effect on the production of cotton. — The result of such a system was first that the production of cotton, great as it was, did not begin to equal the capabilities of the South. Only a small part of the land was cultivated; in 1850 De Bow calculated that the entire cotton crop of that year was grown on only 5,000,000 acres. And, secondly, since its cultivation depended so largely on slave labor, its production increased only with the growth of slavery. As this form of labor was increased at the best more slowly than similar supplies of free labor would have been, the system of slavery stifled the progress of the South even in that branch of production in which it was supposed to excel and to which it had sacrificed all others. There was no equilibrium between supply and demand; since his capital was all invested in slaves and cotton lands, the planter found it practically impossible to decrease his production in times of over-supply and equally difficult to increase it rapidly when the demand rose. Cotton growing was thus extremely uncertain and speculative. The production of

[1] Seaman, Progress of Nations, II, 572

cotton probably lagged behind the economic demand during the decade and a half before the war, as is shown by the rising price of that commodity and by the great increase in the price of slaves. In 1840 the average value of all slaves dependent on cotton culture was estimated by De Bow at $500; twenty years later Olmsted found that good field hands were worth $1400 on the average, while as high as $2000 was sometimes paid.

224. The economic cost of slave labor. — That slavery involved an economic loss to the nation and also to the South as a whole is evident. Was it profitable to the slave-owner? The items involved in the yearly cost of a slave to his master were many, including interest on capital, cost of maintenance (food, clothing and lodging), depreciation, taxation, and insurance against death, sickness, and flight. A moderate estimate for all of these would be not less than $135 a year; that this is not excessive is shown by the rate of slave hire, which ranged from $140 to $150 in Georgia in the twenty years prior to the Civil War. As negro agricultural laborers can be hired in the same State to-day for $120 a year with board, it is clear that the bare cost of slave labor was as high as the services of the negroes in a state of freedom at present. A report made to the Secretary of the Treasury about 1850 by forty-six sugar planters of Louisiana gave the cost of feeding and clothing an able-bodied slave at $30 a year, of which probably $20 went for food. This was five and a half cents a day. The diet of the slaves was coarse but wholesome; cornmeal, with molasses, and generally bacon, were the staples. The clothing was of the coarsest, and the cabins, while rude, were probably as good as the inmates could appreciate. Any comparison between slave labor and white free labor must be misleading, for many of the defects in the system were due to the fact that the slave was a negro as well as a bondman. The real problem involved was that of the relative efficiency of slave and free negro labor, the answer to which is the solution of the labor problem of the South to-day.

225. Character of plantation management. — The defects of the system were, however, not wholly due to the quality of the labor; the incapacity of the masters was also responsible for the failure of agriculture in the South. The absence of rotation or diversification of crops and of the use of fertilizers to prevent the exhaustion of the soil, of improved live stock, of machinery, building, and fences; in short, the lack of a scientific agriculture, even among the small planters without slaves, was a frequent matter of complaint in southern journals and conventions. Large plantations were the rule: the average size of the farms in the ten cotton States in 1850 was 273 acres, and this had considerably increased by 1860. Some of the cotton plantations contained over 10,000 acres. With the large plantations there went also large gangs of slaves. On the large cotton plantations absenteeism of the owners was the rule, while the management was left to an overseer, who sought only to obtain the largest possible crop without regard to the future. Educated by the very system under which they operated their plantations to feel contempt for labor, often unenterprising and lazy, the planters spent little time on their estates, which were consequently greatly neglected. Most of the year was spent in the cities. Moreover, the profits secured from cotton production, instead of going to improve the land, were sunk in the purchase of fresh fields and additional slaves. The capital of the South was thus invested in fixed forms which tied it down to prevailing methods and permitted no improvement or diversification from year to year.

226. Moral effects of slavery. — The effects of slavery obviously did not end with the economic losses involved; more insidious and harmful were the moral results. Not only were the marriage relations among the negroes loose in the extreme, but they were rendered still more so by the breaking up of families through sale. Such a state of affairs, together with the possession of unlimited power on the part of masters and lax morals on the part of female slaves, reacted upon the relations between the whites and blacks. Of the treatment of

slaves it is difficult to speak with accuracy. On the large cotton and sugar plantations, especially in the malarious rice fields of Georgia and South Carolina, the negroes suffered most. Here they were under the direction of overseers and were driven and herded in gangs. House servants and those owned in small numbers were usually treated with humanity and even consideration. The possession of absolute power by practically irresponsible masters must often have led to the abuse of that power and to inhuman conduct. Flogging necessarily accompanied the system of slave labor, but wanton cruelty in the use of the lash certainly did not rule. The treatment was probably severest, or at least the supervision was strictest, in the border States, where there was constant danger of running away. Slaves were regarded as only a form of property; they were sold and transferred like other commodities. Regular slave-markets were held where slave-dealers auctioned off their human chattels. To the credit of the South it must be said that the slave-dealer was usually a social outcast. Every effort was made to keep the slave from rising, and while religious instruction was generally given, education was strictly forbidden by law.

RUNAWAY SLAVE

This cut was a familiar illustration in Southern newspapers, where it headed the advertisements of runaway slaves. The following is an example of such an advertisement: "Ran away, negress, Caroline; had on a collar with one prong turned down."

227. Slavery and the population. — The ownership of the slaves was concentrated in a very few hands. Less than 5 per cent. of a population of 8,000,000 whites in the southern States owned the 3,950,000 slaves in the United States in 1860. Associated with these actual slave-owners were many who,

while not slave-owners themselves, sympathized thoroughly with them in their attitude towards slavery. The population of the South was thus strongly stratified as a result of the existence of this institution. At the top stood the slave-owners and the professional and commercial classes. At the other extreme were the slaves, who may, however, be further differentiated into field hands, house servants, and artisans, mechanics, etc. Between these came that most miserable and shiftless class known as poor whites, whose position as free laborers in a slave society exposed them to the scorn of both slaves and slave-owners. There was also a small and growing number of free negroes, though most of these were to be found in the North.

228. Progress of the South prevented. — Slavery prevented the growth of population in the South. Although they had started out almost even in 1800, the North had increased much more rapidly, having in 1860 a population of 19,083,927, as against 12,315,374 in the South. Much of this increase naturally came from foreign immigration, which avoided the slave States and peopled the central States and the great Northwest. Greater than this loss, however, was the lack of diversified industries in the South. Not merely was agriculture confined to a few staple crops, but most important of all, manufactures and mining were prevented from developing. The southern States were rich in natural resources, deposits of iron and coal, timber and water-power, but these remained absolutely undeveloped prior to the Civil War. It was impossible to carry on these industries with slave labor, and so long as slavery existed, neither free labor nor capital could be attracted to their exploitation. Of the real and personal property in the country, $10,957,000,000 out of a total of $16,159,000,000 was credited to the northern States in 1859. Industrially and commercially the South remained stagnant, and not until war had abolished slavery was it prepared for the splendid industrial advance upon which it has now tardily entered.

229. Summary: Sectional divergence. — The most striking

characteristic of this period was the growing sectional divergence of North and South. The North was developing its manufactures and finding a rapidly expanding market for them in the growing population of the West, while this section was exchanging for these its surplus agricultural products. East and West were rapidly becoming economically integrated and forming together a state that was already almost self-sufficing. The South, on the other hand, stood practically alone in sectional isolation. Cut off by her "peculiar institution" from normal economic relations with the rest of the country, she had no share in its growth, but stood apart until war broke down the barriers and opened the way for her natural development.

230. Summary: Material development. — The system of protection to manufacturing industries was early adopted as a conscious policy by the American people, especially after the Embargo and the War of 1812 had forced them to begin manufacturing for themselves. As the South, condemned by the inefficiency of slave labor to a primitive agriculture, could not hope to develop manufactures for herself, she naturally objected to paying higher prices to help northern manufacturers. Thus the tariff first brought to a point the sectional differences, which were later to become so serious, between the slave and the free States.

As yet, however, the country was too new and undeveloped to permit the growth of a purely industrial state; the westward movement was the indication of a national impulse to appropriate and exploit the wealth of a virgin soil. The purchase of Louisiana Territory gave a definite aim to this movement, although it did not initiate it. Hand in hand with the settlement of the western lands went the improvement of the means of transportation. So important was this that both Federal and State governments lent their aid to building turnpikes and canals, but, after some rather disastrous experiences with these, left to private corporations the task of providing the country with railroads. Protection to American industries and the

development of internal improvements were the two parts of the "American System," which engaged the energies of the nation during this period. Capital and enterprise began to be diverted from foreign trade to internal development, and the first stage in the decline of the ocean merchant marine commenced. On the whole, it was a period of extraordinary material development, in which the exploitation of its natural resources became the definite aim of the people of the United States.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XIX

1. What differences were there between slavery in the ancient world and in the United States? [Palgrave, Dict. of Pol. Econ., art. Slavery; Encycl.]

2. What was the "black belt"? [Brown, Lower So. in Amer. Hist., 25.]

3. What proof or illustrations can you give to show that the inefficient methods of the masters were responsible for the industrial backwardness of the South? [Ingle, 56–58; Olmsted, all books.]

4. Mules were generally used on southern plantations instead of horses; why? [Olmsted, Seaboard Slave States, 47; Ingle, 60.]

5. What effect did the existence of slavery have upon the education of southern white children? [Rhodes, Hist. of the U. S., I, 343.]

6. What effect did the institution of slavery have upon the attitude of the South to the questions of (*a*) protection and tariff, (*b*) internal improvements? [McMaster, V, 170.]

7. What effect upon their attitude to the annexation of Texas, and the war with Mexico? [Hammond, 55–58; Ingle, chap. 9; Brown, Lower So., 83–112.]

8. Was there any internal migration of free whites from the southern States to other States? To which, and why? [Eighth Census (1860), vol. Pop., 33–34.]

9. What proportion of the total exports and imports respectively belonged to the South? Did this involve a loss to the South? [Goodloe, 117; De Bow, Wealth and Resources of the South and West.]

10. What were some of the non-agricultural industries of the South, and how far were they developed? [Ingle, chap. 3; Coman, 249–254; De Bow, *passim*.]

11. Trace the development of manufactures in some typical southern State up to 1860. [Eighth Census (1860), vol. Man., 11–14; Ingle, chap. 3.]

12. What proportion of the food, clothing, etc., consumed in the

South was raised there? [Ingle, 64; Peto, 308; Eighth Census (1860), Manuf., 67; De Bow, III, 195–207, 285–299.]

13. What was the proportion of large and small farms in the North and South? [Seaman, II, 572; Eighth Census (1860), vol. Agric., 221.]

14. How much capital was invested in slaves in 1860? If slavery had never existed, how would this wealth probably have been invested? Would the South have been better off?

15. How did the growth of cities in the South compare with those of the North? [Twelfth Census (1900), I, 24–25.]

16. What was the development of railroads in the South? [Ingle, 99; Coman, 252; De Bow, II, 435–454.]

17. Was the movement toward emancipation so strong before 1860 as to lead you to believe that the slaves would have been voluntarily freed in a short time? [Brown, Lower So., 50–83; Coman, 256–258; De Bow, II, 262–292; Olmsted, Seaboard Slave States, 125–133, 633–637; Eighth Census (1860), vol. Pop., 15–16.]

18. Describe the effects of serfdom and the emancipation of the serfs in Russia. [Johnson, Great Events, XVII, 353–378; Hourwich, The Economics of the Russian Village, in Columbia Studies in Hist., Econ., and Pub. Law, II, no. 1; Stone, Capitalism on Trial in Russia, in Polit. Sci. Quart., XIII, 91; Leroy-Beaulieu, The Empire of the Tsars and the Russians, I. 403–473, 505–579; Simkhovitch, The Russian Peasant and Autocracy, in Polit. Sci. Quart., XXI, 569–595.

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PART IV

ECONOMIC INTEGRATION AND INDUSTRIAL ORGANIZATION (1860–1906)

CHAPTER XX

THE PRODUCTION AND EXPORT OF FOOD AND RAW MATERIALS (1860–1880)

231. Effect of the Civil War. — The period from 1860 to 1880 is characterized by the entrance of the United States into the world's markets as the chief source of supply of food products and of raw materials for Europe. By the end of that time the United States assumed the leading place as a producer and exporter of breadstuffs and grains, as she had already of cotton and tobacco. The Civil War affected the agricultural development of the country both directly and indirectly. As a result of the war demand for agricultural products, prices rose rapidly and production was greatly stimulated. At the same time the organization of great armies withdrew thousands of men from the farms and diminished the labor supply, a loss which was but partially made up by the immigration from Europe. One result of the scarcity of labor was the application to agriculture on an unprecedented scale of labor-saving machinery. It has even been asserted that the issue of the Civil War was decided by the invention of the reaper. The ultimate victory of the North was no doubt largely due to the fact that during the war the gathering of the harvests and the development of the Northwest proceeded uninterruptedly. For instance, the wheat production of Indiana increased from 15,000,000 bushels in 1859 to 20,000,000 in 1863, although one tenth of her male population were in the army. In 1865 it was estimated that there were not less than 250,000 reapers in use in the United States, each of which would cut an average

of ten acres in a day of twelve hours. On the other hand, the greatest blow struck the South was the establishment of a naval blockade which prevented the marketing of her great staple, cotton.

232. Growth of the grain States. — The population of the grain States (*i.e.*, the North Central division) increased during the decade 1860–70 by more than 42 per cent., and in the next decade by nearly 34 per cent.; this represented an addition to the population in twenty years of over eight million inhabitants. The opening of new land to settlement stimulated immigration to such an extent that 2,500,000 persons came to the United States during the decade 1860–70, to be followed in the next ten years by 3,000,000 more, a large proportion of whom settled in the middle West. The greatest growth took place in the newer States of the Northwest, although even in the older States, like Illinois, Iowa, and Missouri, the increase was more rapid than the general rate. In the single decade 1870–80 over 297,000 square miles, or a territory equal in extent to Great Britain and France combined, were added to the cultivated area of the United States. Such a development was made possible by the extension of the railroad system in the grain region, which opened up new areas for cultivation and made it possible to market the product speedily and economically. A powerful influence leading to the settlement of the spring wheat section of the Northwest was exerted by the introduction in the early seventies of the "new process" of reducing wheat to flour. Iron and porcelain rollers replaced the old millstones, the grain being run through half a dozen sets of rollers. Whereas previously the flour made from spring wheat had been of inferior grade, it was now rendered superior to that made from winter wheat; consequently the price of spring wheat advanced and greatly stimulated the wheat-raising industry of that section. Between 1870 and 1880 the population of Minnesota and the Dakotas, where it was chiefly grown, increased from 453,887 to 915,950.

233. The Homestead Act. — The passage of the Homestead

Act in 1862 made easy and profitable the acquisition of a farm home, especially for those with little capital. The fundamental principle of the act was the grant of a free homestead to the actual settler; after five years' residence the title passed, without charge, to the "homesteader." As a result of this law thousands of people took up the free land of the middle West, over sixty-five million acres being given away to individuals during the twenty-year period 1860–80. This act was the logical outcome of the pre-emption system and has since been the accepted policy of the government in disposing of the public lands. So rapid was the settlement of the free land that by 1880 the "frontier" had entirely disappeared and there was practically continuous settlement from ocean to ocean. Of the Homestead Act the Public Land Commission said: "It protects the government, it fills the States with homes, it builds up communities, and lessens the chances of social and civil disorder by giving ownership of the soil, in small tracts, to the occupants thereof. It was copied from no other nation's system. It was originally and distinctly American, and remains a monument to its originators."

234. Production of cereals. — The increase in the number of farms, from 2,044,077 in 1860 to 4,008,907 in 1880, with an accompanying increase of over 120,000,000 acres of improved farm land, was attended by a great expansion of production. Although the improved land in 1880 was but 15 per cent. of the total area, it produced, according to Mulhall, 30 per cent. of the grain of the world — a fact pregnant with possibilities for the future. The increase in the production of the six principal cereals during this period may be seen in the following table:

PRODUCTION OF CEREALS, 1860–1880 (IN BUSHELS)

Year	Indian corn	Wheat	Oats	Barley	Rye	Buckwheat
1860	838,792,742	173,104,924	172,643,185	15,825,898	15,540,605	17,571,818
1880	1,754,861,535	459,479,505	407,858,999	44,113,495	19,831,595	11,817,327

The tendency, already noticed, is observeable here of concentrating the attention on certain great staples: wheat and corn in the North far outstripped all others in importance; while in the South the same thing was true of cotton and tobacco. The production of a few staples on a large scale made possible the application of machinery and the introduction of factory methods which already were beginning to be characteristic of American agriculture. In New England, which

HARVESTING WITH CRADLES

In various parts of the country, especially the South, the primitive method of harvesting with the cradle-scythe, or the scythe alone, is still largely followed. On small farms or in a rough country this is necessary.

now felt severely the competition of the fresh wheat lands of the West, resort was had to a more intensive cultivation. The transition to a careful system of small farming was practically accomplished in the eastern States during this period.

235. Agricultural machinery. — The application of machinery to agriculture, which had begun before the war, was now made on a still more extensive scale, the value of farming implements and machinery increasing from $246,000,000 in

1860 to $406,000,000 in 1880. It was estimated in 1880 that over 10,000 patents had been granted in this country up to that time for implements and machines connected directly with the cultivation, preparation, and handling of grain. Of these the most important were the threshers (first driven by horse power and then by steam), the reapers, and finally the complete harvester. By means of these improved agricultural machines the average amount of grain that could be harvested, threshed, and prepared for the market, from the standing grain to the marketable product, by a single man per day, was increased from about 4 bushels in 1830 to about 50 bushels in 1880. A few years later Mr. D. A. Wells estimated that the labor of three to four men on the great wheat fields of Dakota would annually produce, convert into flour, and transport to the seaboard one thousand barrels of flour, or enough for the yearly consumption of one thousand persons. The effect on the production of wheat is seen in the growth of the per capita production for the United States from 5.6 bushels in 1860 to 9.2 bushels in 1880. At the same time the cost of wheat bread to the consumer was greatly cheapened.

Hardly less important than the invention of agricultural machinery were the improvements in the methods of transporting and handling the grain. As long as it remained in the farmer's hands the grain was carried entirely by hand in bags or sacks and was moved by teams. After it left the farm it was handled and carried in bulk by steam power. A system of grading and classification was established by which all specific lots of a certain grade were dealt with together in bulk, in the most economical manner. The use of elevators for transferring or storing grain made it possible to unload and elevate the grain, in the best establishments, at the rate of a carload a minute; vessels were loaded at the rate of 8,000 to 10,000 bushels an hour. The use of such unique methods alone made it possible to dispose of the growing grain trade of the country.

236. Growth of the international grain trade. — One result

of the great movement of grain by steam was the better distribution of the world's grain supply. Before that a short crop in any country meant dear bread in that place, if not famine, but now the shortage of one country was quickly made up by the surplus of another. The exportation of breadstuffs by the United States did not begin on a large scale until after

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GREAT NORTHERN ELEVATOR AND SHIPPING, BUFFALO, N. Y.
Elevators are used for storing grain until it is wanted for use. The larger modern elevators consist of huge steel tanks or bins, capable of holding 500,000 to 1,000,000 bushels. They are usually built by the water and with rail connections, as shown above, so that the grain may be shipped either by water or rail. The vessel at the extreme left in the foreground is a whaleback, a fast-disappearing type on the Great Lakes.

1860, but during the Civil War the exports increased enormously, partly owing to the fact that the cutting off of the market in the southern States threw a large surplus into the channels of foreign trade. The following decade disclosed an even more astonishing growth. As the increase in cereal production was twice as rapid as the growth of population, a large

exportable surplus was grown each year. The exports of wheat and corn — the only two cereals sent abroad to any extent — are shown in the following table:

CHIEF EXPORTS OF CEREALS. AGGREGATE FOR TEN YEARS ENDING

Year	Wheat (bushels)	Wheat Flour (barrels)	Indian Corn (bushels)	Corn Meal (barrels)
1860...	51,709,036	27,701,638	54,784,029	2,438,531
1870...	187,686,309	30,360,781	102,527,365	2,578,247
1880...	550,767,121	37,117,241	439,656,935	3,422,376

One interesting change took place in the exports of wheat — whereas in 1830 flour constituted 99 per cent. of the total wheat exported, by 1880 it had fallen to less than 25 per cent. This change was due largely to the protection given by various European countries to the milling interest. As a result most of the American flour still exported went to the West Indies and to the South American countries. The United States was already the most important wheat-exporting country in the world, supplying about half the needs of wheat-importing nations. Russia, Austro-Hungary, and Turkey were the other most important wheat-growing countries, while Great Britain, Switzerland, Italy, and Belgium were our best customers. Of Indian corn only 5 per cent. of the total crop was exported, the rest being used chiefly as a feed crop at home.

237. Failure of the plantation system in the South. — Under the system of slavery a large part of the capital of Southern planters which would otherwise have taken the form of improved lands, buildings, and machinery had been invested in slaves. The 3,953,760 slaves in the South in 1860 were valued at $2,000,000,000; in the planting States this form of property greatly exceeded all others, both real and personal. The Civil War not only swept away this form of property, but resulted in the destruction of buildings, tools, cattle, and other capital. The high price of cotton, however — 43 cents a pound in 1865

and 30 cents in 1866 — encouraged the planters to revive its production. Many borrowed the necessary capital, thus introducing on a large scale the system of agricultural credit which has since been so characteristic of southern agriculture, and proceeded to raise cotton with hired labor. This had two unfortunate results: in the first place, there was an overproduction of cotton, causing a rapid fall in the price; in the second place, it led to a return to the old one-crop plantation system, with its concentration on cotton. The wage system which was thus inaugurated was found to be utterly unsatisfactory, as the freedmen were quite irresponsible. The character of the labor and the falling price of cotton, in addition to the burden of overtaxation under the carpet-bag governments, caused the ruin of many planters, and vast areas of land went out of cultivation. "Plantations that had brought from $100,000 to $150,000 before the war and even since, were sold at $6,000 or $10,000 or hung on the hands of the planter and his factor at any price. The ruin seemed to be universal and complete, and the old plantation system, it then seemed, had perished utterly and forever." [1] The total value of farming lands in the South declined over 48 per cent. between 1860 and 1870.

238. The era of small farms. — An era of small farms followed the failure of the large plantation system under free labor, and the large land holdings were broken up to suit small purchasers. Many of the "poor whites," and not a few negroes purchased farms of ten to twelve acres, and proceeded to raise cotton on their own account. In Mississippi, for example, there were but 412 farms of less than 10 acres in 1867, and 10,003 in 1870; the number of small farms of less than 100 acres increased 55 per cent. in the South during the decade 1860–70, while the average size of farms decreased from 401.7 acres to 229.8 acres. Nearly 40 per cent. of the laborers engaged in the cultivation of cotton by 1876 were whites, as against about 11 per cent. before the war. In fact, it was

[1] H. W. Grady, in Harper's Magazine, 53: 721.

mainly the " poor whites " who took over the land relinquished by the large " ante-bellum " planters and began the process of regenerating the South. Most of the land was not bought

A Modern Cotton Gin

Gin houses are built nowadays at railroad centers, where the ginning for the ne borhood is done. A modern establishment contains, in addition to the steam r gin, which separates the fiber from the seed, various other devices designed to for the seeds and lint after separation. But the essential elements of Whitn original gin still remain, though magnified many times over.

outright by the small farmer, however, but was worked on shares; the system of cash rents was never wide-spread. Under these systems the methods of production were gradually improved, fertilizers and improved machinery were more

generally used, and the average yield of cotton per acre increased from 172 pounds in 1860 to 222 in 1870. The total yield of 2,275,372,000 pounds in 1860, the last uninterrrupted year of production under slavery, was, however, not equaled until 1879, when the product was 2,404,410,000 pounds. On the other hand, there was some slight diversification of crops. Whereas in 1860 cotton occupied 44 per cent. of the tillable area of the cotton States, Indian corn 38 per cent., and other crops 18 per cent.; in 1876 only 35 per cent. was given over to cotton, 41 per cent. to corn, and 24 per cent. to other crops.

239. The system of agricultural credit. — Although the method of advancing money and supplies on growing crops was practised in the South before the war, the necessities of planters after that event made its use characteristic of southern agriculture. Cotton factors advanced the capital necessary to revive the production of this staple, themselves often borrowing from commission houses, and taking a crop lien on the growing crop of the planter. When falling prices resulted in the breaking up of the plantation system and the rise of a small tenant and freehold farming class, the system was extended. The lender was now, however, the merchant and country storekeeper, who was personally familiar with the small borrower and who could, moreover, exercise constant supervision over the crop. While economically necessary at first as a means of securing the needed capital, this practice of agricultural credit soon resulted in a system of peonage of the debtor farmer to the merchant who became his creditor, under which the debtor was kept almost in a state of serfdom, working for his creditor until his debts were paid. All supplies must be purchased through the creditor, and the crops must be sold through him, on both of which transactions lucrative commissions were charged in addition to frequently usurious rates of interest.

240. Other agricultural products. — Next to cotton, tobacco is the most important staple of the South, although between 1860 and 1880 the production remained almost stationary. About half — 215,000,000 pounds in 1880 — was exported,

most of it going to Germany, Great Britain, and France. The bulk of the product was quite localized, Kentucky, Virginia, and Maryland producing 60 per cent. The production of cane sugar, which was raised almost exclusively in Louisiana, declined 22 per cent. between 1860 and 1880. Rice, like cane sugar, was confined to a narrow geographical range, almost one half being raised in South Carolina; its culture also showed a considerable falling off. The production of none of these articles was sufficient for home consumption, and illustrates again the increasing concentration of the South on cotton. The grass crop was the greatest of all crops of the country, the amount of hay harvested, in addition to that consumed in grazing, almost doubling between 1860 and 1880. There was also a very noticeable increase during this period in garden and orchard products, especially in the southern and some of the western States, owing to the wide extension of fruit culture in those regions. The following table presents the figures for most of these products:

AGRICULTURAL PRODUCTS, 1860–1880

Product	1860	1880
Tobacco, pounds	434,209,461	472,661,157
Cane sugar, pounds	230,982,000	178,872,000
Rice, pounds	187,167,032	110,131,373
Hay, tons	19,083,896	35,150,711
Potatoes, bushels	———	202,837,231
Orchard products, value	———	$50,876,154
Garden products, value	———	$21,761,250
Cheese, pounds	———	243,157,850
Butter, pounds	———	806,672,071

241. Live stock and dairy products. — Except in the case of horses the rate of increase of live stock on farms did not keep pace with the growth of population. There were, however, vast herds of cattle, sheep, and swine on the ranges of the West which were not enumerated in the census. According to that

publication there were on the average for every family in the country a horse, a cow, four pigs, and three sheep. The process of converting this live stock into food for human consumption began its wonderful growth during this period. The invention of the refrigerator car, the first shipment by which from Chicago to New York took place in 1869, gave a wonderful impetus to the slaughtering and meat-packing industry. Pork-packing, which had been mainly done in the winter up to this time, was now possible during the summer; the number of hogs killed grew from 992,310 in 1860 to 11,001,699 in 1880. The dressed beef trade, too, was given a stimulus by the introduction of the refrigerating process. The export of fresh beef dates from 1876, though the exportation of live cattle had already begun in 1870. The total value of the products in the slaughtering and meat-packing industries grew enormously, from $29,441,776 in 1860 to $303,562,413 in 1880.

CREAM SEPARATOR

The invention of the centrifugal machine for separating cream from milk, by reducing the cost, gave a great impetus to butter making. In such a machine the cream is separated from the milk by centrifugal force — the heavier milk being thrown outward from a rapidly revolving cylinder while the cream remains at the center. In a butter or cheese factory the separators and churns are driven by steam; the old processes of "setting" and "skimming" and of churning by hand have given place to factory methods.

The dairy industry was also revolutionized by the introduction of factory methods in the making of cheese, although a beginning had been made in the fifties. By 1880 more than four fifths of the cheese produced in the United States was made in factories. On the other hand, as late as 1870 the common form of churn in use for butter making was aptly

described by a child's riddle: "Big at the bottom, and small at the top, a thing in the middle goes flippety-flop." By 1880 only three and one half per cent. of all the butter produced was as yet made in factories. Over 500 million gallons of milk was used for these purposes in addition to over 200 million gallons

POWER CHURN AND BUTTER MIXER

Butter is made by separating the butter fat in cream form from the milk serum by the process of churning, which consists in agitating the cream. In the old-fashioned dash churn the motion was largely one of stirring, but the modern churn as shown in the picture secures the result by means of the concussion of the particles upon the sides of the revolving or moving vessel. At the right of the churn is the butter mixer, a revolving table with fluted power roller under which the butter is brought by the revolutions of the table. The mixer works out the butter-milk, a process which was formerly done by hand.

sold otherwise. The statistics of poultry and eggs were gathered for the first time by the census of 1880, and showed a total of 125,507,322 fowl in the country; for the year 1880 they produced 456,910,916 dozens of eggs, which were valued at $55,000,000, a sum more than equal to the interest on the national debt at that time. The aggregate value of all farm

products in 1880 was $2,212,540,927, which was larger than that of any other nation in the world.

242. Farm area and ownership. — The enormous increase in the number of farms during the period 1860–80 — from 2,044,077 to 4,008,907 — resulted partly from the inclusion of new lands and partly from the subdivision of existing farms. The former was true principally of the West; the latter, of the South. The total land in farms did not increase nearly as rapidly — from 407,000,000 to 536,000,000 acres — and consequently the average size of farms declined from 199 acres in 1860 to 134 acres in 1880, while the percentage of improved area in farms increased from 43 per cent. to 53 per cent., showing a growth of more intensive small-scale farming and a fuller use of the land. In the census of 1880 statistics were gathered for the first time to show the tenure of land in the United States, when it was disclosed that 74 per cent. of the farms were cultivated by their owners, while 18 per cent. were cultivated by tenants paying a share of the product as rent, and 8 per cent. by tenants who paid a fixed money rental. The system of ownership was most general in the North and West, while in the South, from causes already indicated, the practice of tenant farming was more prevalent, over one third of the farms in that section being rented. More than one half of the farms rented were under fifty acres; on the other hand, almost three fourths of the farms cultivated by their owners were over fifty acres. These facts seemed to indicate a desire to operate a farm on his own account even on the part of the man without means to purchase the same outright. The value of farms in the United States, with improvements, increased from $6,645,045,007 to $10,197,096,776, or from $16 to $19 average value per acre in this twenty-year period.

243. Forest products. — The consumption of forest products has always been carried on most lavishly in the United States, and after the Civil War the demand for lumber for railroad building and other purposes greatly increased. In

the census of 1870 for the first time a canvass was made of our forest resources, and the relatively small area of forest became known. Increasing interest began to be manifested, and laws for the encouragement of timber planting were passed by most of the western States in the seventies. Congress in 1873 joined in this kind of legislation by the passage of the timber culture

PULP MILL

Paper can be made from any vegetable fibers, the best qualities being made of rags, and the cheaper grades of hemp and jute, or of wood. On the right of this mill may be seen the grinders, which macerate the wood, and on the left the screens where the matting process takes place after the fibers are freed from the water used in making the pulp.

act, and in 1876 established a forestry agency in the Department of Agriculture. Owing to abuses, the timber culture act was repealed in 1891, while the State laws remained largely dead letters. With the destruction of the forests the center of the lumber industry gradually shifted from the northeastern States, which furnished 55 per cent. of the product in 1850 and 36 per cent. in 1860, to the Lake States, where 33 per cent. was

secured in 1880. The progress of the lumber industry may be seen from the following table:

Year	Woodland and Forest in Farms (acres)	Number of Establishments (thousands)	Capital (millions of dollars)	Number of Employes (thousands)	Value of Products (millions of dollars)
1860	159,310,177[1]	20.7	74.5	75.8	95.7
1880	190,255,744	25.7	181.2	148.0	233.3

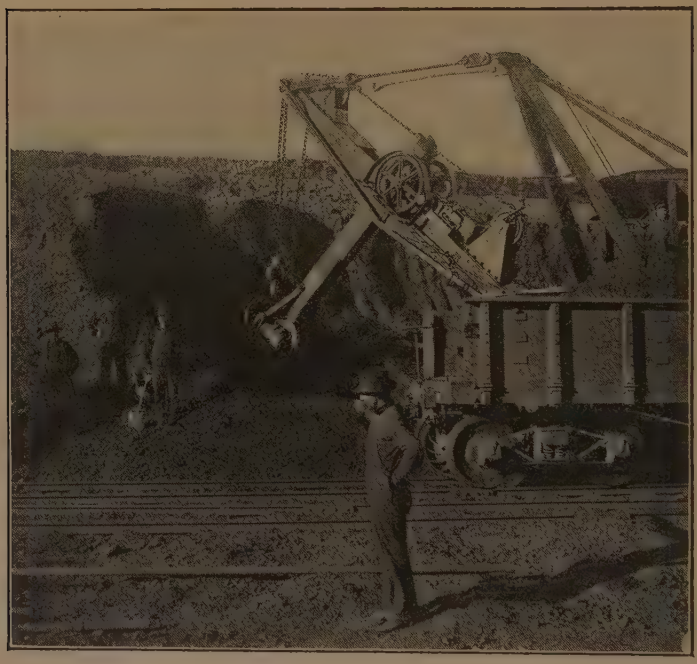
244. Products of the mines: Coal and iron. — In his highly eulogistic book, "Triumphant Democracy," Mr. Carnegie makes the statement that the United States is "the largest, most populous, wealthiest civilized nation in the world, and also the greatest agricultural, pastoral, and manufacturing nation," and then adds, "it is the greatest mining nation as well." The basis for such a claim is stated in the following table:

Year	Number of Mines or Quarries	Capital	Average Number of Wage-earners	Value of Products
1860...	9,323	$65,853,730	100,754	$89,544,435
1870...	8,775	245,757,606	163,185	191,002,543
1880...	22,404	1,448,808,032	295,991	251,967,055

While practically all branches of mining show an increase, the rate of growth in different lines was very uneven. In the output of coal, the basic industry for so many other industries, there was an increase from 14,333,922 short tons in 1860 to 71,481,570 in 1880, or three to four times as rapid a growth as that of the population. There was at the same time a great change in the relative importance of bituminous coal, which now constituted 60 per cent. of the total as against 43 per cent. at the beginning of this period. By 1880 the United States

[1] 1870

turned out 21 per cent. of the world's production of coal, being surpassed only by Great Britain. The production of iron ore almost trebled, increasing from 2,873,460 long tons in 1860 to



OPEN PIT IRON MINE

In the Lake Superior iron-ore regions, a steam shovel scoops up the ore from open pits, filling cars at the rate of almost one a minute. The ore is then carried by car to the neighboring shipping ports on the lake and dumped into bunkers, from which it slides down chutes into the hatches of the ore ships. Over 3000 tons an hour are loaded in this fashion. Owing to the ease and cheapness of the methods, and the purity of the ore, the Lake Superior region is now producing about three fourths of the iron ore used in the United States.

7,120,362 tons in 1880. Pennsylvania, Michigan, and New York together produced about two thirds of the total, ranking in the order named. The iron ranges of the Lake Superior regions were being opened up, from which ore

could be easily and cheaply shipped to the lake manufacturing ports.

245. Other mineral products. — In 1880 Mulhall estimated that America had contributed 50 per cent. of the world's stock of gold; the United States was then the greatest single producer of the precious metals, though followed closely by Australia. During the war decade the supply of gold from California fell off, but the discovery of the Comstock lode in 1859 helped to make good the deficiency. In 1877, the year of greatest production, the yield of this famous mine was $36,301,537, of which $22,000,000 was silver. The rush to Nevada after the discovery of the precious metals there was almost as great as to California a decade before: from 6857 in 1860, the population of the State grew to 62,266 in 1880. The total annual production of the precious metals during this period increased from $47,163,170 to $74,127,177. A beginning had been made too in the production of copper, the United States contributing about 25,000 tons in 1880 or one sixth of the world's supply. Northern Michigan produced five sixths of the domestic output in 1879, the metal being found in an almost pure state in some of the mines. The great revolution in the copper industry belongs, however, to the next period. Of immense importance both industrially and socially was the discovery of petroleum. Until its introduction the tallow candle had been the almost universal source of artificial light. The existence of oil had long been known in New York, Pennsylvania, and Ohio, and had been sold for medicinal purposes under the name of "Seneca oil," but the first well was not drilled until 1859. From 2000 barrels in that year valued at $29 a barrel the production rapidly increased to 3,000,000 barrels in 1862, when it sold as low as ten cents a barrel, owing to over production and the lack of a widespread demand. At first, the transportation facilities were wofully inadequate to market the crude petroleum, but improvements were gradually made in tank cars, etc. A great impetus was given the industry by the building of pipe lines, of which the first local one was constructed in

1865; the first through line was built in 1875 to Pittsburg, and in 1880 the first pipe line to the seaboard was begun. The production increased steadily to 26,286,123 barrels in 1880, worth $24,600,638. Vast quantities were exported to Europe and the Orient, the fourth rank in the exports of the United States being held by the new illuminant.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XX

1. Describe the effect of the Civil War on the agriculture of the South. [Schwab, The Confederate States of America, chap. 12; Garner, Reconstruction in Mississippi, chaps. 4, 16; Du Bois, Souls of Black Folks, chap. 2; Du Bois, Negro Farmer, 79–81; Hammond, The Cotton Industry, 127.]

2. What was the effect of the increase in the exportation of grain and decrease in that of cotton during the Civil War upon the independence of the Confederate States? [Fite, in Quart. Journ. Econ., XX, 263 7.]

3. What relation, if any, can be shown to exist between the price of wheat and the development of the West? [Veblen, Price of Wheat since 1867, in Journ. of Polit. Econ., I, 68–94.]

4. What were the principal causes of the growth of our grain exports after 1860? [Report of U. S. Com'r of Agric., 1862, pp. 66-73; 1876, pp. 164–180; 1889, pp. 251–264; 1891, pp. 288 340; Dunn, Amer. Farms and Foods, chaps. 12, 25; Fite, in Quart. Journ. of Econ., 260–262.]

5. The average yield of wheat per acre in England is 35 bushels, and in the United States about 15. Why did and does England import wheat from the United States?

6. Trace the agitation for the free distribution of the public lands. Do you consider it a wise measure? [Coman, 279; Donaldson, 332–350; Sato, 428–439; Powderly, Thirty Years of Labor, chap. 8; Congressional Globe, *1861–62*, pp. 40, 132–139, 909–910.]

7. Could one secure a homestead to-day? Is there any free publi land in your State? Why is it not all taken up? [Bliss, Encycl. of Soc Ref., art. Public Domain; Rep. of U. S. Land Com'r.]

8. What is the national grange? What good has it accomplished? [Martin, Hist. of the Grange Movement; Adams, Granger Movement, in No. Amer. Rev., CXX, 394; F. J. Foster, The Grange in New England, in Annals, IV, 798–805; C. W. Preisen, Outcome of the Granger Movement, in Pop. Sci. Mo., XXXII, 201; Bliss, Encycl. of Soc. Ref., art. Grange.]

9. What were the grievances of the farmers that led to the so-called Granger movement? What remedy was sought? [Adams, in No. Amer. Rev., CXX, 394; Moody, Land and Labor, chap. 3; Martin, Hist. of Grange

Movement, part 6; Hadley, Railroad Transportation, 129–139; Adams, Railroads, 123–132.]

10. Should the forests or fisheries ever be exhausted if properly managed? Is this true of mines? Of soils? [Marshall (4th ed.), 244–7.]

11. Are large or small farms better? [Marshall, Princ. of Econ., chap. 10, sects. 8, 9; chap. 11, sect. 7; Marshall, Econ. of Industry, 176–181; De Laveleye, Elements of Polit. Econ., 110; Nicholson, Princ. of Polit. Econ., I, 309; Gide, Polit. Econ., 154–7; Mill, Princ. of Polit. Econ., book I, chap. 9, sect. 4; Fawcett, Manual of Polit. Econ., 67–70; Mayo-Smith, Statistics and Econ., chap. 4.]

12. Are the people engaged in farming employed in more productive occupations than those engaged in transportation or domestic service? [Bullock, Intro. to the Study of Economics, 116; Gide, Principles of Polit. Econ. (2d ed.), 75–80.]

13. What effect, if any, has the introduction of farm machinery had upon the character of farm labor? [Quaintance, 69–92.]

14. Trace the history of the flour-milling industry. [Pillsbury, American Flour, in Depew's One Hundred Years of American Commerce, I, 266–273; Tunell, in Journ. of Polit. Econ., V, 340–375; Wheat in Commerce: Bureau of Statistics, Summary of Commerce and Finance for March, 1888, p. 1400.]

15. Describe the growth of the pork-packing and dressed-beef industries. [Armour, The Packing Industry, in Depew's One Hundred Years of American Commerce, II, 383–388; U. S. Agric. Reports, 1853, p. 50; 1863, p. 207; 1875, p. 96; 1876, p. 312; 1877, pp. 374–382; 1881, pp. 613–614; 1889, pp. 69–74; 1891, p. 318.]

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CHAPTER XXI

AGRICULTURE AS A BUSINESS (1880–1906)

246. Position and growth of agriculture. — Down to 1880 agriculture was the principal source of wealth in the United States, but the two succeeding census reports have shown larger values of manufactured articles than of agricultural products; in 1900 the net value of products of the farm was $3,764,177,706 and of pure manufactures $5,981,454,234. The proportion of the population engaged in agriculture has also steadily declined, from 44.3 per cent. of those engaged in gainful occupations in 1880 to 35.7 per cent. in 1900. It must not, however, be inferred from these facts that agriculture is a declining industry. The farm area under cultivation has increased more rapidly than the population, while improved methods of cultivation and of transportation have so greatly increased the yield that a larger surplus of agricultural products over the needs of the people is annually set free for export. Agriculture still gives employment to a larger proportion of the population than any other branch of industry, and is progressing only less rapidly than the manufacturing and transportation industries.

In the twenty-year period, 1880–1900, there were added to the farm area in the United States over 305,000,000 acres, an increase of more than 50 per cent. In spite of this great expansion of settlement, less than half (841.2 million acres) of the total area of land (1,911.2 million acres) was in farms in 1900, and less than one half of this (414.7 million acres) was improved. Much of the land not included in farms or remaining unimproved is arid or semi-arid and adapted only for grazing, unless it is reclaimed by means of irrigation. It is probable,

therefore, that the next census will report a slackening in the increase of improved farm area.

247. Number and size of farms. — This immense area is divided into 5,700,000 farms, an increase of 1,700,000 or over

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A COMBINED HARVESTER AND THRASHER IN THE STATE OF WASHINGTON

An evolution from the sickle and the flail. On the dry Pacific slope the two processes are performed at the same time by the same piece of machinery, but in the middle States the sheaves are usually stacked until dry, when the thrashing is done by steam thrashers.

40 per cent. since 1880, which is a rate of growth more rapid than that of the population. Accordingly, the agricultural population was much better provided with separate farms at

the end of this period than at the beginning; between 1850 and 1900 the proportion of farms to the rural population increased from 1 farm for every 14 such persons to 1 farm for every 9 persons. This gain represents both the subdivision of old farms and the taking up of new land. The average size of farms declined between 1850 and 1880, owing to the resort to more intensive farming in the eastern States and to the division of the large southern plantations after the Civil War. Since 1880 there has been a slight increase again in the size of farms (from an average of 133.7 acres in that year to 146.6 acres in 1900) as a result mainly of the inclusion in the census reports of the grazing ranches of the Southwest.

While these farms loom large when compared with the 20-acre farms of France or the 60-acre farms of Great Britain, under the agricultural conditions that exist here the United States may nevertheless be considered a country of small and average holdings. Over two thirds of the farms (70.5 per cent.) contain 20 to 175 acres, and only 2.6 per cent. are larger than 500 acres. The large farms, moreover, contain a smaller proportion of improved area than do the small ones, which are more intensively cultivated.

There was a fairly steady growth in the average value of American farms between 1880 and 1900 (from $3038 to $3574), but it has remained for the half decade since 1900 to add conspicuously to their value. The Secretary of Agriculture, in his report for 1905, estimates that the farms of the country have increased in value during that period by $6,133,000,000 or more than in the preceding ten years: "every sunset during the past five years has registered an increase of $3,400,000 in the value of the farms of this country."

248. Ownership of farms. — More important, however, than the expansion of the farm area is the question of farm tenure. In 1880, for the first time, statistics of farm ownership were published in the census, when the gratifying result was revealed that three quarters (74.5 per cent.) of the farms in the United States were operated by their owners. Since that time the

proportion has fallen considerably, to 71.6 per cent. in 1890 and 64.7 per cent. in 1900, and alarm has been expressed that our democratic conditions of land ownership were giving way to a system of tenantry. The reverse, however, seems to be true, and the growth of the tenant class indicates rather the endeavor of farm laborers and persons of small means to make themselves independent than the fall of former owners to the rank of tenants. This is shown by the steady growth in the number of those owning farms, more rapid even than the increase in the agricultural population. The greatest increase in tenant farming has been in the South, where the large plantations have been broken up and are now being cultivated by small cash or share tenants.

The division of the plantations of the South and of the "bonanza" farms of the West show the extension of the small farm system rather than the decline of ownership; a large proportion of the tenant farms are under 20 acres. A study of the ages of operating owners, tenants, and laborers strengthens this conclusion. Almost 90 per cent. of the farm laborers are under 35 years of age, 67 per cent. of the tenants are under 45, while nearly 60 per cent. of the owners are over 45 years of age. There is thus, with advancing age, a steady rise from the condition of laborer to tenant and finally to that of owner. Nor does the existence of mortgage indebtedness warrant any gloomy foreboding; taken in connection with the other facts it must be held to represent the struggle of the former tenant to purchase an equity in the land he tills, or of the small owner to provide himself with the necessary capital for improvements. As a result of the prosperity of the last few years the farmers have been paying off these debts, and are to-day probably in a stronger position than at any time in our history. In the South, too, the profitable price of cotton during the past three years has been of great importance in lifting the cotton planter out of the slough. The crop lien has almost disappeared and, for the first time in the financial history of the South, deposits in the banks of that section now exceed $1,000,000,000.

FORTY BINDERS AT WORK IN IOWA

On the large, level farms of the middle West the grain is usually cut by self-binding reapers. As the harvesting must be done as soon as possible after the wheat is ripe, and a reaper can harvest only about ten acres a day, each farm requires a number of these machines.

249. Farm machinery. — The distinctive feature of American agriculture during the last half century has been the growing use of farm machinery. On the enormous farms of the West the greatest development has taken place; here are used enormous fifty horse-power steam traction engines to

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A Modern Corn Harvester

A machine cutting and binding corn in a Michigan farmer's field. The bundles of corn are afterward stacked in shocks in the fields for drying, after which the corn is husked, usually by hand, on the field or in the barn.

operate plows, harrows, drills, harvesting machines, etc. But in the middle West the progress has been no less rapid, and the work of planting, cultivating, and husking corn is carried on by machinery; mowing machines, horse hay-rakes, tedders, and stackers have revolutionized the work of making hay; while potato planters and diggers, feed choppers and grinders,

manure spreaders, ditch-digging machines, and innumerable other implements have greatly lessened the hand labor required. Some idea of the great development may be gained from the following table:

VALUES OF FARM IMPLEMENTS AND MACHINERY, 1880–1900

Year	Total Values	Values per Farm	Value per Acre of Farm Land
1880	$406,520,055	$101	$.76
1890	494,247,467	108	.79
1900	761,261,550	133	.90

The motive power for most of this machinery is that of the horse or mule, and we find accordingly that the increase in the

CORN SHOCKER

The stalks of corn are bound together at the top as they are cut, and then stacked together for drying and until it is convenient to husk them.

number of these animals has proceeded *pari passu* with that of farm machinery. "In the last twenty years," concludes the census report for 1900, "by the aid of machinery, and the substitution of horse power for hand labor, the effectiveness of human labor on farms has been increased to the extent of about 33 per cent." There are in the United States over 20,000,000 horses and mules on the farms alone; whereas including those in the towns there are in Germany only 4,184,000, in France 2,903,000, and in Great Britain 2,000,000. "The agricultural supremacy of the United States," writes Prof. Leroy-Beaulieu, "has been won through the combined use of machinery and domestic animals to turn into wealth the fertility of a virgin soil."

250. Value of products. — Four branches only of American agriculture are extremely important; these are the raising of live stock, the production of hay and grain, of cotton, and of dairy produce. Over 75 per cent. of all farms in the United States in 1900 returned one of these as the principal source of income, although many other things, such as garden and orchard products, poultry and eggs, and tobacco, are raised extensively in connection with these other more important articles. The following table presents some of the principal facts as to the progress of agriculture during the period 1880–1900:

AGRICULTURAL PRODUCTS

Products	1880	1890	1900
Value of all farm products	$2,212,500,000	$2,460,000,000	$4,739,000,000
Value of live stock on farms	1,577,000,000	2,309,000,000	2,982,000,000
Total production eight cereals, bushels	2,699,000,000	3,521,000,000	4,435,000,000
Total production hay and forage, tons	35,000,000	66,800,000	79,000,000
Total production cotton, bales	5,700,000	7,400,000	9,500,000
Total production tobacco, pounds	472,600,000	488,000,000	868,000,000

As might be expected, these different products are variously distributed throughout the different sections of the country. Dairy farming is predominant in the North Atlantic States; the production of hay and grain employs almost every farm throughout the North Central and Northwestern regions. In the South cotton is practically the only crop below the twenty-fifth parallel of latitude, while north of this tobacco, grains, and live stock supplement but do not supplant cotton. The raising of live stock is the chief industry in the semi-arid region of the West, and is also important in the northern States generally. The North Central division constitutes the great farming section of the country, producing half of the agricultural wealth ($2,360,000,000); within this district Iowa leads as the most important farming State in the Union, with a product of $365,000,000 in 1900.

251. Cereal production. — The production of cereals is the most important branch of agriculture in the United States, representing more than half the total value of the crops raised and requiring the use of nearly half of all the improved farm land. There are eight cereal crops which are grown in considerable quantities, and which are, in the order of their importance, corn, wheat, oats, barley, rye, buckwheat, rice, and Kafir corn. In the following table will be found the statistics of their production since 1880:

PRODUCTION OF CEREALS

Kind	1880	1890	1900	Value in 1900
Total production of corn, bushels	1,755,000,000	2,122,000,000	2,666,000,000	$828,000,000
Total production of wheat, bushels	459,000,000	468,000,000	658,500,000	369,900,000
Total production of oats, bushels	407,800,000	809,000,000	943,000,000	217,000,000
Total production of barley, bushels	44,000,000	78,000,000	110,600,000	41,600,000
Total production of rye, bushels	19,800,000	28,000,000	25,500,000	12,000,000
Total production buckwheat, bushels	11,800,000	12,000,000	11,000,000	5,700,000
Total production of rice, pounds	110,000,000	128,500,000	250,280,000	7,819,805
Total production of cereals, bushels	2,699,000,000	3,521,000,000	4,414,600,000	$1,482,000,000

It will be noticed that while there have been fluctuations in the separate crops there has been no slackening in the increase of cereal production as a whole. Most of the gain has come from opening up new land in Minnesota, North and South Dakota, Nebraska, and Kansas, which contributed half of the increase in acreage during this period. Considerable additions have also been made by Texas and Oklahoma.

CORN HUSKER AND SHREDDER

When dry the corn must be husked as soon as possible, that is, the covering must be stripped from the ear. The task is enormous, and numerous machines have been invented to do the work, but until recently they have not proved satisfactory, and most of the husking is still done by hand.

The center of cereal production has moved steadily westward, from eastern Indiana in 1860 to eastern Iowa in 1900. With the practical exhaustion of unoccupied land suitable for grain raising it is evident that the future growth of cereal production will depend more upon improved methods of agriculture than upon the addition of new lands; in any case

the rate of increase will probably be slower than it has been in the past.

Of the separate crops, corn is by far the most important, representing 80 per cent. of the total world production and 60 per cent. of all the cereals in the United States in 1900; the crop for that year was worth $828,000,000. Most of the corn (75 per cent.) is fed to stock throughout the corn-belt and comes to market in the form of beef and pork, dairy products, and poultry. In the production of wheat the United States also ranks first. Although worth less than one half as much as the corn crop ($369,900,000), it attracts more general attention because of its importance as an export crop, many European nations depending upon the United States to supply their deficits. With the exception of oats, the value of which crop in 1900 was $217,000,000, the other cereals are of minor importance.

252. Cotton. — In spite of a steady fall in price the production of cotton has as steadily increased, from 2,607,000,000 pounds in 1880 to 4,717,000,000 in 1900, and 5,287,000,000 in 1905. Even at the low price prevailing in 1900, this amount was then worth over $370,000,000. As an export product its importance is still more marked, making up as it does about one quarter of the total exports. Notwithstanding vigorous efforts on the part of foreign producers to make themselves economically independent of the United States in the production of cotton, this country produces over three fourths of the cotton supply of the world. As a result partly of the lower price of cotton, southern agriculture has been diversified, hired labor has been largely dispensed with, and fertilizers have been generally introduced; $30,000,000 was expended for fertilizers in the southern States in 1900, or over half of all so spent in the country.

Since the war the scarcity of labor in the South has resulted in the invention of various labor-saving implements in the production of cotton, of which the most important are the cottonseed planter, the fertilizer distributer, the cotton-stalk

cutter, and various kinds of plows and harrows. Vigorous efforts are also being made to perfect cotton-picking machinery. The last quarter of a century has seen the most remarkable growth in the cottonseed industry, and in the utilization of the stalks and roots, all of which had previously been regarded as waste products to be disposed of at considerable expense.

Cottonseed oil, obtained from the seeds, is used in making salad oils, oleomargarine, lard, and soap, the meal is used as a fertilizer or fed to the stock, and the hulls and stalks are used for the same purpose; southern farmers realized almost $50,000,000 from the sale of cottonseed alone in 1900.

A peculiar feature of cotton production is that it is largely in the hands of tenant farmers, over 67 per cent. of the crop having been produced by them in 1900. The number of tenant farms, especially of those rented for cash, has increased much more rapidly than those operated by their owners; of all the cotton farms, 49 per cent. were in the hands of negroes. While the average yield per acre was less for the negro owner (.368 bale) than for the white owner (.398 bale), the difference is so slight, considering the difficulties under which the negro operates, as to afford ground for hope in the increased efficiency of the negro as a producer of cotton.

253. Other products. — Next to cotton, the most important crop in the South is tobacco, in the production of which this country also leads the world. The tobacco crop of 1880 was only slightly in excess of that of 1860, but a great extension in the industry has since taken place, the output in 1900 having reached 868,163,275 pounds, worth about $57,000,000. Over half of this amount was raised in the States of Kentucky, North Carolina, and Virginia, and nearly half of the total is annually exported.

In the production of sugar the United States falls far behind Europe, raising only about one quarter of the amount consumed at home. Of the 864,600,000 pounds of cane sugar produced in 1900, over 542,000,000 pounds came from Hawaii and practically all the remainder from Louisiana. The

production of beet sugar is so recent that statistics appear for the first time in the census of 1900, when about 160 million pounds were reported (as against 123,200 million pounds for Europe), chiefly from beets grown in California and Michigan. It is hardly probable that the future will see any considerable extension of cane sugar production in continental America, as it can be grown so advantageously in the outlying possessions, Hawaii, Porto Rico, and the Philippines, as well as in Cuba; any expansion will probably take place in the production of beet sugar.

Of much greater value is the annual production of vegetables ($242,000,000 in 1900), of fruit ($131,000,000), and of flowers, plants, and nursery products ($18,500,000). While these have always been grown in the vicinity of large cities, recent improvements in transportation, especially the invention of refrigerator cars and cold storage warehouses, have caused a rapid expansion of their production in the remote States of California, Florida, Georgia, and the lower Mississippi valley.

The same causes have also made possible the preservation and transportation over long distances of dairy products, poultry, eggs, and other perishable commodities. In 1900 there were produced on the farms in the United States 1,293,800,000 dozen eggs worth over $144,000,000, and poultry to the number of 267,000,000 worth about $85,800,000; over 7,266,000,000 gallons of milk, 1,072,000,000 pounds of butter, and 16,000,000 pounds of cheese. In addition to this 420,000,000 pounds of butter and 282,000,000 pounds of cheese were made in factories, showing an almost complete transference of cheese-making from the farm to the factory. Butter-making, too, received a great impetus with the invention of the centrifugal cream separator. The aggregate value of the dairy products of the United States in 1900 was estimated at $590,827,154.

254. Live stock. — Cattle-raising is a frontier industry, and accordingly we find not only that it is carried on most extensively in the western part of this country, but that in the

United States as a whole it is a more important industry than in Europe. In 1900 there were 215,822,238 domestic animals on the farms and ranges of the United States; there are more cattle, swine, and mules here than in any other country in the world, and Russia alone surpasses us in the number of horses. The raising of cattle for food purposes is the most important branch of the live-stock industry; in the twenty years, 1880–1900, the average annual production of beef cattle in the United States amounted to over 32,000,000 head. Since 1890, however, there has been a decrease in the number of neat cattle in the country; taken in connection with the increase in population, it represents a decline of about 20 per cent. Scarcely second in importance is the production of pork and hog products, of which we contribute about one third of the world's supply. Sheep are raised chiefly for their wool, and of these there are not so many slaughtered. The raising of live stock is the predominant industry in the semi-arid States of the West, as Montana, Wyoming, Colorado, and Texas. Before slaughtering, however, the cattle are often fattened in the corn-belt.

It is in these States that the great slaughter-houses and meat-packing establishments are found, notably in the cities of Chicago, Kansas City, and Omaha. Improvements in refrigeration and transportation have caused a great centralization of these industries in a few cities and permitted the growth of an immense export trade in meat products, amounting to about $185,000,000 in 1905. The dairy industry, which is quite distinct from the live-stock industry, is confined chiefly to the corn-belt and the eastern States. Within the twenty-year period, 1880–1900, the value of live stock on the farms and ranges of the United States has almost doubled, increasing from 1,577 million dollars to 2,982 million dollars. At the same time there has been a considerable improvement in the breeds, an increase in weight, and more scientific breeding.

255. Irrigation and the public lands. — With the expansion of the population and the taking up of all the fertile public lands, the problem of reclaiming the arid plains of the western

States has begun to attract attention. Nearly two fifths of the territory of the United States has an annual rainfall of less than twenty inches, and is thereby reduced to a condition of sterility, except for grazing purposes, unless it can be artificially provided with the necessary moisture. Much of this land is exceedingly fertile, but cannot be cultivated except where it is brought under irrigation. This arid belt includes the eight States of Montana, Idaho, Wyoming, Colorado, Utah,

IRRIGATION DITCHES

At the upper end of each ditch it is usual to construct some device by which the amount of water entering from the river can be regulated, and its fair share distributed to each ditch. The effect of irrigation has been marvelous in reclaiming and developing the arid and semi-arid sections of the country.

Nevada, Arizona, and New Mexico, and parts of several other adjoining States.

Although irrigation had been practised in America from time immemorial by the Indians, only a few hundred acres were being irrigated when, in 1847, the Mormons began their experiments in Utah. By 1870 there may have been 20,000 acres under irrigation in the United States, but the next decade was one of rapid construction of small ditches by individuals and associations of farmers, and by 1880 the irrigated territory

had grown to not less than 1,000,000 acres. "In the decade 1880 to 1890 occurred the 'boom' of speculative enterprise in irrigation canals. Large sums of money were obtained for irrigation works by the sale of stocks and bonds, and great enterprises were projected. . . . Nearly all of these failed of financial success. . . . In 1889 there were 3,631,381 acres irrigated. . . . During the following decade the irrigated acreage doubled in extent. This has been due rather to the extension and enlargement of the many canals existing in 1889 and to the more complete practice of irrigation on the lands then under ditch than to the construction of new and large systems of irrigation." [1] In 1900 there were 7,539,545 acres under irrigation, from which were raised crops, chiefly hay and forage and vegetables, with a value of $87,000,000. While most of the work done hitherto has been carried out by private initiative, a demand has recently arisen for irrigation at government expense, in response to which Congress in 1902 provided for the gradual building of irrigation works out of the proceeds of the sales of public lands. Regulation of the use of the limited water-supply, either by State or Federal authority, is essential to the success of irrigation.

There remain of the public domain of the United States about 842,000,000 acres, practically all of which is in the arid zone. The necessity of a revision of our land laws in disposing of these lands has been emphasized by the recent discovery of gigantic frauds to obtain possession of large tracts of grazing land.

256. Forest industries. — Though the lumber industry is so distinct from farming that it is enumerated in the census reports as a manufacturing industry, we may nevertheless consider it in connection with agriculture. The total value of forest products cut or produced on the farms in 1899 was $109,989,868; on the other hand, the value of products of the lumber industry proper was $566,832,984. The annual cut from our forests every year amounts to about forty billion feet board measure;

[1] Twelfth Census, VI, 801.

of this the Lake States contribute 27 per cent., although they are rapidly yielding their supremacy to the southern States, whose production has increased from 12 per cent. of the total in 1880 to 25 per cent. in 1900. As the northern forests have been exhausted there has been a gradual displacement of hardwood by the conifers, especially by the yellow pine of the southern States; about half of the output consists of the various species of pine.

With the practical exhaustion of some of our most valuable forests, due to reckless and wholesale cutting, the importance of forestry regulations has become increasingly evident. In 1898 the Federal government began practical work in the introduction of forestry, which received a great stimulus in 1905, when the care of the National forest reserves, embracing 63,000,000 acres, was transferred to the Department of Agriculture and a separate bureau was organized under the name of the Forest Service. Over 150 professional trained foresters are employed who manage the forests on the public lands and coöperate with private owners to introduce scientific forest management. The rise in the price of lumber shows the necessity for a more careful conservation of our forest wealth.

257. The fisheries. — As one of the extractive industries the fisheries also may properly be grouped with agriculture. Although the relative importance of this industry has greatly declined, the United States is outranked only by Great Britain in the annual catch of fish; in 1900 the catch was worth $40,000,000, of which the coast and ocean fisheries contributed $27,000,000, the river fisheries $9,000,000, and the lake fisheries $4,000,000. A large manufacturing industry for canning and preserving the various fish products has been called into being. In 1900 over 320,000,000 pounds of fish were canned, smoked, or salted, representing a value of $22,000,000; about half of this was salmon. As in the case of our forests, much has been done by the Federal government, through the Fish Commission, to make good the waste occasioned by our earlier prodigality. Lakes and streams have been restocked with fish and more

stringent fish and game laws passed, designed to prevent the extermination of the supply.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XXI

1. How long would it have taken to harvest the crops of 1900 with the hand implements in use 75 years before? [Quaintance, 19–28; Thirteenth An. Rep. of U. S. Bur. of Lab.]

2. Is the change in the proportion of farms to the non-urban population from one farm to fourteen persons in 1850 to one farm to nine persons in 1900 (sect. 247) due to an increase of farms or a decrease in the farming population? [Twelfth Census (1900), vols. I, V.]

3. In his report for 1901 the Secretary of Agriculture says, "We import annually millions of dollars' worth of tropical products that could be grown in the United States." Should the tariff be extended so as to stimulate the growth of these products?

4. If the present increase in the consumption of bread continues, is there danger of a wheat famine in the future? [Crookes, The Wheat Problem, chap. 1.]

5. Why are the exports of corn so small as compared with those of wheat?

6. Describe the ravages of the cotton boll weevil, and attempts to exterminate it. [Publ. Amer. Econ. Ass., 3d series, V, 114–117; Agric. Year-book, 1906, pp. 313–324.]

7. Why do not other countries raise their own cotton instead of importing it from the United States?

8. In 1905 some of the cotton planters agreed to burn part of their crop in order to keep the price up. Was this economically desirable?

9. Describe the production of beet sugar in the United States. Is it likely to increase? [The World's Sugar Production and Consumption 1800–1900, in Mo. Sum. of Com. and Fin., Nov., 1902; Taylor in Annals, XXII, 179; Baker in Rev. of Rev.; XXIII, 324; Lighton in Cosmopol. XXXV, 181; Rutter in Quart. Journ. Econ., XVII, 44.]

10. Describe one of the bonanza farms of the West. [Powell in Arena, XXV, 373; Bindloss in Living Age, CCXXXII, 498; Carver in World's Work, VII, 4232.]

11. What are the most important agricultural products raised near your home? Do you think more profitable ones could be introduced?

12. Is the live-stock industry carried on near cities? The dairy industry? Why? [Trotter, 114; Adams, Com. Geog., 77–79.]

13. Describe the methods of irrigation. [Twelfth Census (1900), VI, 801–880; Mead, Irrigation Institutions; Newell, Irrigation.]

14. Would it be possible to obtain a free grant of land to-day? How would you go about it?

15. Describe scientific forestry, and tell how far it has been introduced into the United States. [Reps. U. S. Dept. of Agric., especially 1860, 1865, 1870, 1875, 1886; Publ. U. S. Bur. of Forestry, Sen. Doc., 54th Cong., 1 sess., no. 84; H. C. Adams, Sci. of Fin., 242–247; Fernow, Econ. of Forestry.]

16. Describe the threatened extinction of the seal and the success of efforts to preserve them. Are any fish in American waters threatened with extinction, and why? [Henderson, Amer. Dipl. Questions, 10–15; Sprague in Overland, N. S., XLII, 435; Jordan in International, VII, 222.]

17. Why was there such wide-spread discontent among the farmers about 1890? [Rep. Ind. Com., VI, 36–143, 225–268; Peffer, Farmer's Side; Emerick, An Analysis of Agricultural Discontent, in Pol. Sci. Quart., XI, XII; Elliott, Amer. Farms, books 2, 3; Bemis, The Discontent of the Farmer, in Journ. Pol. Econ., I, 193–213.]

18. Sketch the history and demands of the Populist Party. [Peffer, Farmer's Side; Peffer, Mission of Pop. Party, in No. Amer. Rev., Dec., 1893; Walker, The Farmer's Movement, Annals, IV, 790; Gladden, The Embattled Farmers, in Forum, X, 315; McVey, The Populist Movement; Bliss, Encycl. of Soc. Ref., arts. Farmer's Alliance, Farmer's Movement, People's Party; Drew, The Present Farmers' Movement, in Pol. Sci. Quart., VI, 282–310.]

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**Harwood: The New Earth.
*Industrial Commission Reports, vols. 6, 10, 11.
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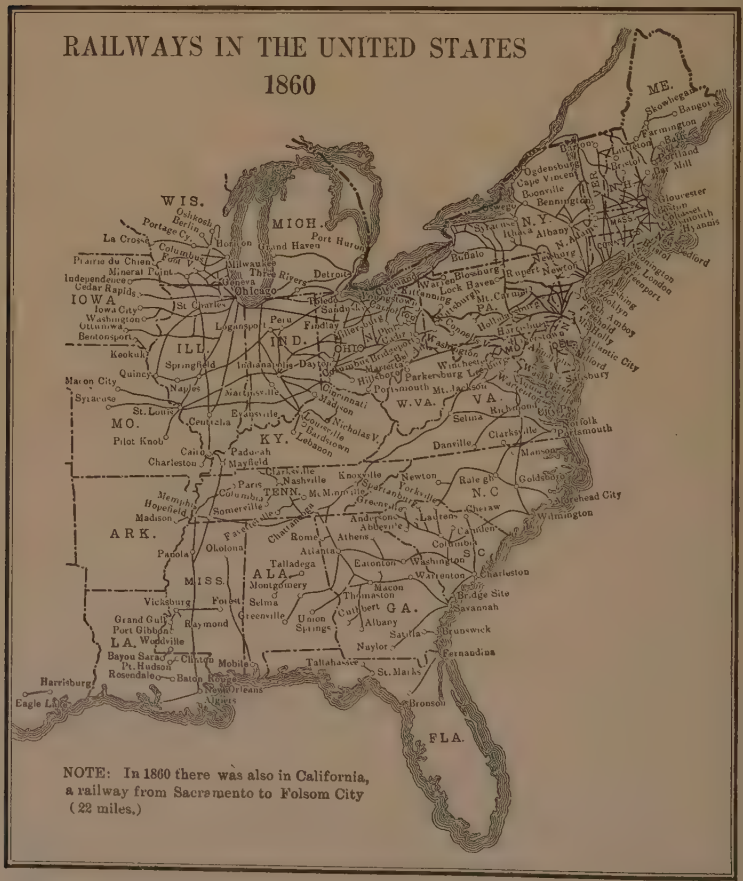
CHAPTER XXII

TRANSPORTATION AND COMMUNICATION (1860–1880)

258. Growth of the railway system. — The means of transportation and communication were developed upon an unprecedented scale during the twenty years after the Civil War. Railroad building was checked during the war, but only temporarily, and the decade saw the number of miles almost doubled — from 30,635 in 1860 to 52,914 in 1870. The years 1868–72 in particular were years of extraordinarily rapid growth, especially for the upper Mississippi valley. Railroad extension was again interrupted by the crisis of 1873, which was largely caused by the too rapid railway construction and the intense speculation accompanying it, but by 1879 it began to revive, and the end of the decade saw the number of miles again almost doubled; by 1880 there were 92,296 miles of railroad in the United States. This increase of almost 75 per cent. in ten years far outran the growth in population, which was only 30 per cent. in the same period. Most of the new construction took place in the northwestern States and afforded an outlet for the grain supplies which these States were beginning to pour into the world's markets. The building of the railways, too, both facilitated and was demanded by the enormous immigration which now began to fill up our western territory. During this same decade the population in the Northwest increased 44 per cent. and that of the Pacific States 114 per cent. By 1880 there was one mile of road completed to every 571 of the population, as against every 1087 in 1860. The people of the United States were already better supplied with railroad facilities than were those of any other country.

259. Character of the American railroad. — The nature of the traffic carried by the American railroads was already impressing upon them certain characteristics which differentiated them greatly from European railroads. Over 60 per cent.



of the freight tonnage in 1880 consisted of heavy, bulky articles, such as coal, grain (these two alone making up 45 per cent. of all freight), iron, lumber, stone, and petroleum. It is evident that heavier rails, bridges, and cars were needed than where

the traffic consisted of light general merchandise and manufactures. Even more necessary before such goods could be moved profitably was the establishment of low rates. Consequently, the history of American railway development since the Civil War has been in both these directions. Probably no other single influence has been as effective in reducing the cost of transportation and improving the general condition of the roads as the substitution of steel for iron rails. A few imported steel rails had been laid as early as 1864, but their manufacture in the United States did not begin until 1867. Their use increased slowly, but by 1877 the annual production of steel rails had passed that of iron rails, and by 1880 was exactly double. At the same time there was a steady reduction in price, from $166 (currency) per ton in 1867 to $67.50 in 1880.[1] The use of steel in the construction of locomotives and cars, as well as the enhanced strength of the rails, led to a great increase in their size, weight, and capacity, and at the same time the permanent way was improved by reduction of grades, better alignment of track, improved drainage and ballasting, and better bridges. These improvements permitted the carriage of coal, grain, and similar commodities in large quantities and the handling them in bulk, and led to the development of facilities especially designed for such traffic. This period also witnessed the introduction of the first sleeping and dining cars.

260. The transcontinental railroads. — The idea of a transcontinental railroad had been advocated as early as 1834, and the gold discoveries in California had revived the demand for its construction, but nothing was done in this direction until 1862. Then the political and military necessity of uniting the Pacific States with the East, and of securing better means of communication with the Southwest, induced Congress to aid several companies to build lines across the western plains. The Union Pacific railroad, which constructed its line from Omaha to Ogden, received 12,000,000 acres of the public lands, and the Central Pacific, which built eastward from Sacramento

[1] In 1879 the price fell to $48.25.

to connect with the Union Pacific, received 8,000,000 acres. Additional grants to the Kansas Pacific and other corporations brought up the total to 33,000,000 acres. In addition to these grants of land the three companies mentioned received large loans of money from the federal government. During the

DRIVING THE LAST SPIKE

The Union Pacific and the Central Pacific railroads were joined at Promontory Point, near Ogden, Utah, on May 10, 1869. When the "last spike," made of California gold, was driven in the news was telegraphed to every part of the country and was received with general rejoicing. The building of this first transcontinental railroad was a striking evidence of the irrepressible energy of the people of the United States. It was of incalculable value in developing the West and uniting it with the East.

twenty-one years between 1850 and 1871, at which time land-grants were discontinued, more than 159,000,000 acres were placed at the disposal of railroad corporations by the Federal government and 55,000,000 acres by the State governments. In addition to the transcontinental lines, other roads were built running north and south, and the country was rapidly

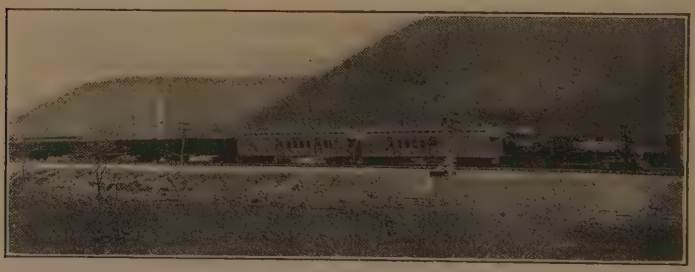
being united by great trunk lines and a network of shorter lines.

261. Railroad combination. — More momentous even than the physical growth and improvement of the railroads have been the various problems to which they have given rise. One of the first of these to attract public attention was that of consolidation. As long as the traffic was local the lines remained short and unconnected; not until after 1850 was a length of 500 miles attained by any one line. In the decade 1850–60 many consolidations of short links into one connected road took place, but the larger combinations of connecting roads into great trunk lines did not occur until after the war. Then the growth of the western grain traffic and other long-distance business made through shipments very desirable, and under the leadership of such skilful railroad managers as Thomas A. Scott and Cornelius Vanderbilt an era of combination took place. By 1880 the great trunk lines as they exist to-day had already been formed. With the growth of through traffic it became necessary also to develop methods of reducing expenses and avoiding reshipment of goods from one line to another. One solution of the problem was the growth of special companies to look after the through business of various kinds. Thus there grew up sleeping-car companies, express companies, and fast-freight companies.

262. Railroad competition and pooling. — The formation of great trunk lines, while reducing the number of competitors, increased the intensity of competition, especially for the through traffic between the Central West and the Atlantic seaboard. The main lines that were bidding for western business were the New York Central, Pennsylvania, Erie, and Baltimore and Ohio, but their rivalry did not become serious until after 1869, in which year the New York Central and Pennsylvania secured through connections to Chicago. A few years later Chicago was reached by the Erie, Baltimore and Ohio, and the Grand Trunk, and a series of ruinous rate wars was initiated by the efforts of the competing roads to divert as much of their rivals'

business to themselves as possible. As consolidation was out of the question, agreements were made which usually took the form of pools, according to which the whole traffic or earnings were divided among the erstwhile competitors on some pre-arranged basis. Pooling, which began in 1870, was the leading characteristic of railroad development during the decade following.

263. Rates. — "No other incident of the rapid development of railway facilities in the United States since the Civil War is so thoroughly characteristic as the progressive reduction in the charges for the transportation services they perform." Passenger fares have not been reduced so rapidly as freight rates,



TRAIN OF 1870

The illustration shows a mixed train, composed of baggage cars, freight cars, and passenger coaches. This would be a rare sight to-day, when the business of the railroad is much more specialized than it was even thirty-five years ago.

but competition has taken the form rather of improving the service. In 1871 the average rate per passenger per mile was 2.632 cents (gold), and in 1881 it was 2.446 cents. Freight rates declined more rapidly, especially for the through traffic; this was brought about largely by the various improvements in the equipment and management of railroads which have been described. The average rate per ton per mile was 1.927 cents (gold) in 1867; ten years later it was 1.286 cents, a reduction of over one third. The effect of these low rates was soon seen in the development of the West, the shifting of

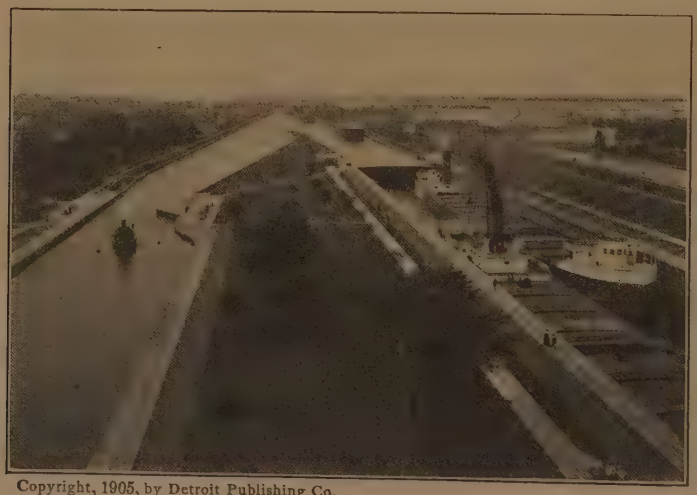
cereal production entirely from New England and largely from the North Atlantic States to the Central and Northwestern States, and the diversion of traffic from the lake and canal routes to the railroads. As the railroads began to carry more of the traffic, the cities of Boston, Philadelphia, and Baltimore began to clamor for a larger share than they had been able to secure, while the Erie Canal and the Hudson River were the chief highways of commerce. Accordingly, a system of "differential" rates was established, which made the charges to those cities somewhat less than that to New York, and placed them on an equality in bidding for the export trade.

264. Water routes. — We shall get a still clearer idea of the growing importance of railway transportation by noting briefly the changes that were occurring in the lake and river traffic. The Erie Canal was the only artificial water-way which, after the Civil War, still carried any considerable amount of traffic; as late as 1868 practically all of the grain arriving at New York City came by way of the canals. After 1873, however, the canal traffic began to decline rapidly. In 1876 the New York railroads carried more than three times as much tonnage as the canals and more than half of all the grain received at New York City. The diversion of traffic to the railroads became so great that in 1882 the canal tolls were abolished, but this had little effect on the traffic, which has ever since steadily lessened.

After the Civil War it was found, too, that the traffic which had previously gone down the Mississippi River to New Orleans was now permanently diverted to the railroads or to the lake route. The receipts at New Orleans by water of western produce — flour, pork, and lard — were only just sufficient for domestic consumption, while no wheat at all was received. Cotton formed the staple of the Mississippi River traffic, and even this fell off as the years went by. As railroads were extended to river points, they gradually encroached upon the steamboat traffic, which reached high-water mark in 1879,

when the jetties were formally opened to commerce. After that date it steadily declined in importance.

265. Lake and coasting trade. — While the canal traffic was falling off that of the Great Lakes was increasing. The growth of commerce can be shown best by noting the amount of freight passing through the Detroit River and the St. Mary's Falls



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THE LOCKS AT SAULT STE. MARIE, MICH.

On the right is the Poe lock, the largest in the world, 800 feet in length, 100 feet wide, and admitting vessels drawing 20 feet of water. Vessels with a tonnage of over 41,000,000 tons passed through this canal in 1906, or more than three times the tonnage passing through the Suez Canal. This is the best single index of the traffic on the Great Lakes, as the canal is an indispensable link in this chain of natural water-ways, and therefore of great economic value.

Canal.[1] The former increased from 9,000,000 tons in 1873 to 20,000,000 in 1880; the latter, somewhat more rapidly, from 403,657 tons in 1860 to 1,734,890 in 1880. Most of the traffic on the Great Lakes consisted of coal, iron ore, or lumber — all of which were being rapidly exploited — and was carried gener-

[1] Statistics covering the movement of freight upon the whole lake system were not collected until 1889.

RAILWAYS IN THE UNITED STATES

1870-80

Blue=1870

Red=Additions 1870-1880

L.L.POATES ENGR'G CO., N.Y.

ally as through freight from one end of the system to the other. Accompanying the growth in traffic there went on a growth in the size of the vessels and a steady substitution of steam for sails as a motive power. In 1862 the sailing tonnage was more than double the steam tonnage, but by 1882 the two were equal.

On the other hand, the total number of vessels engaged in the coasting trade between 1860 and 1880 remained almost exactly at a standstill, except for a temporary increase during the war. Those employed in the fisheries fell off by 1880 to one half the number so engaged in 1860.

266. Foreign shipping. — The greatest decline, however, was seen in our foreign merchant marine, which decreased from 2,496,894 tons in 1861, the highest point ever reached, to 1,314,402 tons in 1880. During the war almost a third of our vessels were sold to foreigners, others were destroyed by Confederate cruisers or sold to the government for conversion into transports and cruisers. Congress refused to admit vessels sold abroad to American registry again, and our ship-builders were unable to make up the deficiency. The heavy war taxes which had been imposed upon hulls of vessels and marine engines were repealed in 1868, but the duties on cordage, copper, and iron still remained, although a few ship-building materials had been admitted free of duty between 1872 and 1875. These disadvantages made it impossible to compete with British and foreign ship-builders in the construction of iron steamships, and with the passing of the wooden sailing vessel the carrying trade passed almost entirely into foreign hands. By 1865 the percentage of foreign commerce carried in American bottoms was only 27 per cent., and by 1880 it had fallen to 18 per cent. Between 1865 and 1870 we had made a slight gain, even with our wooden sailing vessels, which did not have to give up valuable cargo space to coal, as did steamers on long voyages; but in the latter year the opening of the Suez Canal gave the advantage to the steamer in the China trade by permitting it to recoal *en route*, and inflicted the last blow on our struggling merchant marine.

267. Means of communication. — The development and

improvement of the means of communication kept pace with the industrial growth in other directions. By 1880 there were 110,727 miles of telegraph lines in the country; the number of messages sent in that year was 31,703,181, at an average cost per message of 42 cents. The invention in 1872 of duplex telegraphy gave a tremendous impetus to this industry and greatly reduced the cost of sending messages. In 1876 the telephone was invented, and by 1880 was already in general use, there being in that year in the United States 34,305 miles of wire and over 50,000 receiving telephones in operation. The first commercially successful Atlantic cable was laid in 1866, although an earlier one had been in operation for a few months in 1858. Significant as these events were, the great application of electricity to industry did not take place until after 1880, but enough had been done to show the importance of this new force. The postal business of the country expanded during this period even more rapidly than the population and industry; three improvements in the mail service at the beginning of this period greatly increased its efficiency: delivery of mail by carriers (1863), postal money orders (1864), and mail cars in which the sorting of mail was carried on *en route* (1864). The number of post-offices grew from 28,498 in 1860 to 42,989 in 1880. In the latter year there were published in the United States 11,314 newspapers and periodicals, of which 8,633 were weekly.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XXII

1. What part of the country showed the most rapid railway growth after the Civil War? Why? [Hadley, 37–8; Johnson, 27; Scribner's Stat. Atlas.]

2. Describe the diversion of traffic from the Great Lakes to the railroads, and give reasons. [Tunell in Journ. Pol. Econ., V, 340.]

3. Was the policy of land grants in aid of railroads successful? Why was it discontinued? [H. C. Adams, Sci. of Finance, 258; Sanborn, Congressional Grants of Land in Aid of Railways, chaps. 5–8; Ringwalt, 225; Johnson, chap. 22.

4. Did the United States ever get back the money loaned to the Pacific railroads? [Report of Secretary of Treasury, 1897; Davis, chap. 8; Annals, VIII, 259; Johnson, 316.]

5. Can effective competition be secured between independent railroads? [Hadley, chap. 4; Noyes, Amer. Railroad Rates, chap. 5.]

6. Describe the principal consolidations that took place during this period. [Hadley, chap. 5.]

7. What were the principal pools of the seventies, and upon what basis arranged? [Johnson, chap. 16; Hadley, chap. 5; Ringwalt, 272.]

8. What were the so-called differentials? In whose favor did they operate? [Hadley, 95–98.]

9. What are the main differences between the American and the English or European railways? Which do you think are better? [Pratt, Amer. Railways, 64, 269; Johnson, 347; Hadley, chap. 12.]

10. Describe the building and completion of the Pacific railroads. [Davis, Union Pac. Ry., chap. 5; Johnson, Great Events, XVIII, 287–301].

11. What was the Credit Mobilier? [Davis, chap. 6; Crawford, Credit Mobilier of America; Rept. Ho. of Rep., 42 Cong., 3 sess., nos. 77, 78; Rhodes, Hist. of U. S., VII, chap. 1.]

12. Do any cities in the United States owe their importance to railroads?

13. What would happen if all the railroads in this country were suddenly destroyed?

14. How does our internal commerce compare with our foreign? [Mo. Sum. of Com. and Fin. — latest number.]

15. Tell about the first invention of the telephone. Was Bell entitled to the credit and profits? [Bryn, Progress of Invention; Encycl.]

16. Compare transportation by water and rail from Chicago to New York as to speed, cost, etc. What effect do these have on traffic? [Internal Commerce, Treas. Rept., 1887; Newcomb, Railway Econ., 35.]

17. What were the jetties at the mouth of the Mississippi River, and for what purpose were they built?

18. What is a grain elevator and its advantages?

19. Describe the laying of the Atlantic cable. [Johnson, Great Events, XVIII, 175–185.]

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*Carnegie: Triumphant Democracy, chaps. 12, 13.

*—— Tenth Census (1880), vol. VIII, 96–130.

*Davis: Union Pacific Railway, chaps. 1–4.

**Hadley: Railroad Transportation, chaps. 1–7.

**Marvin: American Merchant Marine, chap. 14.

**Tunell: The Diversion of the Flour and Grain Traffic from the Great Lakes to the Railroads, in Journal of Political Economy, V, 340–375.

Adams: Railroads, Their Origin and Problems, 116–216.
Bates: American Marine, chap. 9.
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Ringwalt: Transportation Systems in the United States, 181–240, 272–284.
Wells: Recent Economic Changes, 37–40, 99, 516–522.

CHAPTER XXIII

RAILROADS AND INTERNAL COMMERCE (1880–1906)

268. The development of the railway system. — Hand in hand with the increase in the production of material wealth has proceeded the growth of means of transportation and distribution. Cheap and rapid systems of transportation have been a necessity over the enormous distances of the American continent, and the railroad has therefore attained an importance greater here than in any other country in the world. In no country has the growth of the railway so directly affected the development of the staple industries. "For years the history of the railroads was the history of the country."

The decade 1880–1890 witnessed the greatest expansion of the railway net that had yet been seen: from 93,296 miles in 1880 the railway mileage grew to 163,597 in 1890, a practical doubling in ten years. The construction was carried on chiefly in the central and western States, where the agricultural and mining wealth was being developed, and where new transportation facilities were most needed. The crisis of 1884 was brought about by the too rapid and speculative railroad building of the years immediately preceding. By 1890 the country seemed to have been pretty well supplied with railway facilities, and since that time construction has been less rapid. The crisis of 1893 and the resulting depression also retarded railroad growth, and forced the railways not merely to curtail new building, but to practise the most rigid economies. Nevertheless, by 1900 the railroad net contained 193,345 miles; in 1905 it had grown to 214,478 miles.

The importance of the transportation industry in the United States may be indicated by a few figures: the capital

value of the railways of the country is about $14,000,000,000, or one seventh of the total wealth; they constitute about two fifths of the railway mileage of the world, and some ten per cent. more than that of all Europe; during the twenty years, 1880–1900, the proportion of persons engaged in gainful occupations who were employed in trade and transportation grew from 10.7 per cent. to 16.4 per cent. More than 1,000,000 men are now employed on the railroads.

269. The public service of the railroads: Freight traffic. — The freight service of the railroads, whether regarded from the standpoint of earnings or of public service, is much more important in the United States than the passenger service; the earnings from freight traffic are almost three times as much as from passengers, while there are forty times as many freight cars as passenger cars. The growth of the freight business, too, has been more rapid than that of any other branch of service, having more than trebled in the past twenty years. More than half of the tonnage consists of products of the mines — coal, ore, stone, etc. — while about a quarter more is made up of lumber, grain, live stock, and other heavy articles shipped in large quantities. Railroads were a necessity for moving these goods from the points of production to the markets, and the chief object in railroad building was to afford these facilities as speedily and cheaply as possible.

As the regions developed the original, hastily constructed lines had to be replaced with better and more expensive ones. The roadbed and track of the best lines have within the past twenty-five years been relaid, curves straightened, grades reduced, old wooden or iron bridges replaced by strong steel or stone ones, and heavier rails laid, millions of dollars having been spent by the railroads in these improvements. These changes were necessitated by the introduction of larger and heavier cars and locomotives, adapted to the heavy traffic peculiar to the United States. Thirty years ago the average freight box-car in the United States had a capacity ranging from 16,000 to 24,000 pounds; in 1881 the 40,000 pound car

was introduced; to-day pressed steel cars with a capacity of 100,000 pounds are in common use. The typical American car is probably the 60,000 pound car. The locomotive shows the same evolution as regards both weight and strength: locomotives weighing over 100 tons and capable of drawing train loads of 2,000 to 2500 tons are found on the best-equipped lines. As the capacity of the railroads to handle the increasing traffic grew, and also the size of the units handled, the terminal facilities for handling freight, especially coal, ore, and grain, were wonderfully developed. Electric cranes, elevators, and other labor-saving devices for handling these commodities in bulk were introduced at stations, and great economies in loading and unloading the cars were effected.

270. The passenger service. — While the competition of rival railroads for freight traffic has resulted in the steady reduction of freight rates, in the passenger service competition has led rather to improvements in accommodations and speed. To-day the passenger on an American railroad can probably travel more luxuriously than in any other country in the world. The use of vestibuled trains, better constructed cars, and improved methods of heating and lighting have contributed greatly to the comfort of traveling. At the same time its safety has been increased for the public by the introduction of the block signal system, and of automatic train-brakes and couplers; although these appliances date only from the eighties, almost all passenger cars to-day are equipped with them. In spite of these precautions, however, the loss of life on American railroads is appalling: in 1905 there were 9703 persons killed and 86,008 injured in railroad accidents. The loss of life and limb was greatest among the employees, especially the trainmen, among whom 1 in every 133 was killed and 1 in every 9 was injured. Chiefly responsible for these accidents have been the lack of precautions in guarding the right of way and giving due notice of the approach of trains, the single tracks and grade crossings, the insufficient

ENGINE AND TRAIN, 1831 AND 1906

The locomotive "John Bull," in the upper picture, was built in England and put in service on the Pennsylvania railroad in 1831. In 1893 it hauled the train, shown above, to Chicago. Contrast with it the modern high-speed compound passenger engine and coach in the lower picture.

labor force and the long hours of work, together with a certain recklessness in the running of trains. This showing is unparalleled anywhere else in the world.

271. Rates and fares. — The causal connection between railroad rates and traffic is one of interaction. As the business of the country grew it became possible for the railroads to reduce rates, and the lower charges in turn stimulated new traffic. Transportation is a business which yields "increasing returns": after the road is built and equipped, its expenses do not grow proportionately with an increase in traffic; as the business develops, it is possible at the same rates to secure constantly increasing returns in profits, or the dividends may remain at the same level and charges be reduced. As a matter of fact, both results have been secured in the United States, although the increasing rate of profits has been largely concealed by the universal practice of watering the stock. The decline in rates is more obvious and striking. This has been brought about by competition between the railways themselves, by the competition of the railways with water routes, and finally by the competition between various productive centers in different parts of the country.

The average revenue per ton per mile received by the railroads in the United States has decreased from 1.24 cents in 1882 to .93 in 1890, and .75 in 1900; since then, owing to the inability of the railroads to handle the enormous expansion of business, it rose to .79 cents in 1904, but we may expect to see a decline again. Passenger fares have not been reduced to the same extent, as lower fares do not stimulate travel in anything like the same degree that lower freight rates stimulate freight traffic; the average revenue per passenger per mile was 2.05 cents in 1904, as against 2.42 cents in 1883. Since 1906 a further reduction has been made as a result of state legislation. Freight rates are considerably lower and passenger fares somewhat higher than those in European countries. The reduction in freight rates is best brought out by

comparing the average annual rates on wheat by lake, canal, and rail from Chicago to New York, which is briefly shown in the following table:

AVERAGE ANNUAL RATES ON WHEAT FROM CHICAGO TO NEW YORK

Year	WHEAT (average rates per bushel)		
	By Lake and Canal	By Lake and Rail	By All Rail
	Cents	*Cents*	*Cents*
1868	22.8	29.0	42.6
1880	12.3	15.7	19.9
1890	5.8	8.5	14.3
1900	4.4	5.1	9.9
1904	4.7	5.0	11.1

272. Discriminations. — While rates are not as low as they could be made, few complaints are made by shippers as to excessive rates. On the other hand, no charge against the railroads has been so constantly reiterated as the practice of granting discriminating rates — discriminations between persons, between localities, and between different classes of goods. Of these the least defensible are personal discriminations. While lower rates to large shippers for car-load lots are not in themselves objectionable, special favors have often been granted to individuals or corporations in order to secure their business by diverting it from rival roads. The Standard Oil Company and other trusts owe their success in large measure to their ability to secure such concessions. Discriminations are granted by means of secret rates and rebates; by paying rentals for private cars; by commissions for securing freight; by underbilling and under classification; by allowances in handling and storing freight, etc. Although these were forbidden by the Interstate Commerce Act of 1887, the receivers of the Baltimore and Ohio Railroad testified before the Industrial Commission in 1898 that more than 50 per cent. of the

traffic, at least on certain lines, was carried at discriminating rates. After that time, owing to the heavy traffic which rendered it less necessary, the practice declined somewhat, and was finally practically put an end to by the Hepburn Act of June, 1906.

Discriminations between places, while objectionable, are not secret and therefore less reprehensible than personal discriminations. They were forbidden in 1887 under the "long and short haul" clause of the Interstate Commerce Act, which prohibited a greater charge for a short than for a long haul over the same line and in the same direction. The value of this provision has since been greatly lessened by excepting competitive rates from its operation. More complaint has been caused by the so-called "differentials," which discriminate between terminal points, as between the Atlantic Coast cities or between the leading cities of the central West.

The question of discrimination between different classes of goods involves the whole problem of freight classification, and must be passed over here with a simple reference.

273. Pools and traffic associations. — The Interstate Commerce law of 1887 forbade "any contract, agreement, or combination . . . for the pooling of freights of different competing railroads," and thereby made illegal all the existing pools between the railroads. To secure coöperation, the various traffic associations simply reorganized, without the pooling clause, "for the purpose of facilitating the transaction and exchange of business with each other." These associations, while technically avoiding pooling, regulated rates and punished offending members. In 1897 and 1898 the Supreme Court decided in two important cases — those against the Trans-Missouri Freight Association and the Joint Traffic Association — that rate agreements violated the Anti-Trust law of 1890, which prohibited "every contract, combination in the form of a trust or otherwise, or conspiracy, in restraint of trade or commerce," and that they were therefore illegal. As pools and rate agreements were now both forbidden, the railways

were compelled to devise a new method of regulating their relations or return to unrestricted competition. The first and most noticeable result was the consolidation of hitherto independent lines and the absorption of the smaller roads by the large systems. Beginning with 1898 the consolidation of railroads proceeded very rapidly, until it was finally checked by the decision in the Northern Securities case (1904) which declared the combination of parallel roads to be illegal. These consolidations had been brought about by purchase in some cases, by lease or by means of stock-holdings in others. Meanwhile, however, the trunk and transcontinental lines had devised another way of preventing competition without resorting to combination; this was by the so-called "community of interest." As we shall see, some eight or nine groups of capitalists control over two thirds of the railway mileage in the United States. By making representatives of one group members of the boards of directors of other groups, a community of interest and management was established which secured the harmonious coöperation of the various lines. Usually there has been a community of ownership also, the owners of one group of roads being financially interested in the other rival roads. That combination of some sort between the railroads is inevitable seems clear; the practical problem is therefore not so much its prevention as its regulation.

274. Consolidation. — While the movement toward consolidation in the railroad world, as well as in manufacturing industries, began soon after the Civil War, it was confined for the most part to the connection of separated links into complete lines. The consolidation of hitherto independent lines into vast systems containing thousands of miles received a great stimulus in the eighties, and a still greater one in the late nineties, as the result of the causes just enumerated. The growth of these long consolidated systems, at the expense of lines of moderate length, is well shown in the following table:

D O M I N I O N O F C A N A D A
L. Manitoba
L. Winnipeg
Winnipeg
Vancouver
Seattle
WASH.
Olympia
Spokane
Portland
Salem
OREGON
Columbia R.
Willamette R.
Pacific Ocean
Walla Walla
Dayton
Lewiston
Snake R.
Idaho
Boise
Grangeville
Missouri R.
MONT.
Helena
Butte
Billings
Missoula
Grand Forks
N. DAK.
Bismarck
Oakes
Gettysburg
S. DAK.
Rapid Cy.
Yankton
WYO.
Lander
Cheyenne
Great Salt L.
Salt Lake Cy.
Ogden
NEB.
Omaha
Council Bluffs
Columbus
Lincoln
Nebraska City
Burlington
IOWA
Des Moines
Clinton
Davenport
Rock Island
Chicago
Peoria
ILL.
Springfield
Quincy
Missouri R.
Kansas City
Topeka
KANS.
Jefferson City
St. Louis
MO.
Shawneetown
Cairo
Paducah
NEV.
Carson Cy.
Sacramento
San Francisco
CAL.
Keeler
UTAH
COLO.
Denver
Pueblo
Santa Fe
N. MEX.
Albuquerque
ARIZ.
Phoenix
Yuma
San Diego
Los Angeles
OKLA.
Guthrie
Red R.
Dallas
Ft. Worth
TEXAS
El Paso
Austin
Houston
Galveston
Laredo
Rio Grande
Guaymas
Gulf of California
Lower California
Matamoros
Mazatlan
M E X I C O
G U L F O F M E X I C O
ARK.
Little Rock
Mississippi R.
MISS.
Jackson
Vicksburg
LA.
New Orleans
Baton Rouge
Shreveport
Memphis
TENN.
Nashville
KY.
Louisville
Frankfort
Lexington
Cincinnati
Columbus
Dayton
Springfield
Toledo
Cleveland
Akron
Youngstown
Pittsburg
Wheeling
W. VA.
Charleston
Lynchburg
Richmond
Washington
Baltimore
MD.
Philadelphia
N. J.
Trenton
Scranton
Harrisburg
PA.
Erie
Buffalo
Rochester
Albany
Utica
Syracuse
Binghamton
Niagara R.
L. Ontario
L. Erie
L. Michigan
L. Huron
L. Superior
Duluth
MINN.
St. Paul
Minneapolis
Winona
Madison
Milwaukee
Chicago
MICH.
Detroit
Lansing
Saginaw
Mackinaw City
Sault Ste. Marie
Georgian Bay
Ottawa
Montreal
St. Lawrence R.
Quebec
ME.
Portland
Concord
Boston
Mass.
Providence
Conn. R.
Hartford
New York
Long I.
Philadelphia
Pa. R.
Norfolk
Raleigh
N. CAR.
Bristol
S. CAR.
Columbia
Charleston
Atlanta
GA.
Savannah
Montgomery
Tallahassee
Jacksonville
FLA.
Tampa
Key West
BAHAMA ISLANDS
CUBA
ATLANTIC OCEAN
VANDERBILT GROUP
SHOWN IN RED LINES
New York Central & Hudson Riv. R.R.
Lake Shore & Michigan Southern Ry.
New York, Chicago & St. Louis R.R.
Michigan Central R.R.
Delaware & Hudson R.R.
Cleveland, Cincinnati, Chicago & St. Louis Ry.
Chicago & Northwestern Ry.
Chicago, St. Paul, Minneapolis & Omaha Ry.
Fremont, Elkhorn & Missouri Val. R.R.
Delaware, Lackawanna & Western R.R.
Lake Erie & Western Railroad
Pittsburg & Lake Erie Railroad
Indiana, Illinois & Iowa Railroad
HARRIMAN GROUP
SHOWN IN BLUE LINES
Southern Pacific R.R.
Union Pacific R.R.
Oregon Short Line R.R.
Oregon Railroad & Navigation Co.
Leavenworth, Kansas & Western Ry.
Chicago & Alton Railway
L.L. POATES ENGRG CO., N.Y.

CLASSIFICATION OF RAILWAYS BY MILEAGE

Item	Mileage over 1000				
	1867	1877	1887	1897	1904
Number of railroads..	1	11	28	44	48
Aggregate mileage ...	1152	13,648	55,447	103,566	143,952
Per cent. total mileage	6.69	20.16	43.64	54.85	65.40

Item	Mileage from 250 to 1000				
	1867	1877	1887	1897	1904
Number of railroads..	21	63	99	91	73
Aggregate mileage ...	8881	27,661	45,225	44,953	36,073
Per cent. total mileage	51.58	40.86	35.70	23.80	16.39

Item	Mileage under 250				
	1867	1877	1887	1897	1904
Number of railroads..	72	362	434	1023	1193
Aggregate mileage ...	7183	26,388	26,373	40,326	40,088
Per cent. total mileage	41.73	38.98	20.76	21.35	18.21

There are at present in the United States some 1800 railroad lines, but many of these are controlled by other railroads through lease, purchase of a majority of the stock, and in other ways, so that the number of independent operating lines is given by the Interstate Commerce Commission as about 800. Most of the connecting lines have been consolidated into a few great systems which are controlled by groups of capitalists. The following are the most important "groups," with the approximate mileage for 1906, although these figures vary from year to year: Vanderbilt (21,353), Pennsylvania (16,836),

Harriman (14,725), Hill (20,242), Morgan (18,879), Gould (16,520), Moore (13,028), Rockefeller (10,293). These great consolidations have followed in the main the territorial groupings of railways; each system serves for the most part a particular district and has in some cases developed special kinds of traffic. Since the consolidation of parallel lines has been declared illegal, it is unlikely that the existing groups will be reduced by further consolidation, but they will probably remain and be enlarged by extension or by new construction. The United States has thus been divided up by a few large transportation companies, as England, France, Italy, and other European countries had earlier been parceled out. While consolidation has resulted in convenience to the public and economies in management and facilities, it places a dangerous amount of power in the hands of a few men, which should clearly be under strict government control.

275. State regulation and control. — In the United States the States have the right to control commerce carried on within their boundaries, while the power to regulate interstate commerce is vested in Congress. Until 1870 little use was made by the State governments of this power; the chief aim of the western States was to secure railroad facilities and there was no disposition to impose restrictions on new roads; competition was relied upon to protect the public from abuses. In the early seventies, however, partly as a result of high rates and gross discriminations on the part of the railways, and partly as a result of the lower prices resulting from currency contraction and the crisis of 1873, the farmers of the western States demanded the regulation of railway rates. Illinois began the movement in 1870 by the establishment of a State commission with powers to prescribe maximum rates, to prohibit discrimination, and to regulate the railroads. This example was followed by other States in the West and South — Iowa, Wisconsin, Minnesota, Georgia, California, etc. The so-called "granger" legislation of this period was extreme and was either repealed or modified in a few years, but as

DOMINION OF CANADA
PACIFIC OCEAN
ATLANTIC OCEAN
GULF OF MEXICO
MEXICO
LOWER CALIFORNIA
CUBA
L. Manitoba
L. Winnipeg
Winnipeg
Vancouver
Spokane
Seattle
WASH.
Olympia
Portland
Salem
OREGON
Columbia R.
Snake R.
Mullan
MONT.
Helena
Butte
Grangeville
IDAHO
Boise
Billings
WYO.
Lander
Missouri
Grand Forks
N. DAK.
Bismarck
Oakes
Gettysburg
S. DAK.
Pierre
Rapid Cy.
Yankton
Sioux Cy.
Clinton
IOWA
Des Moines
Omaha
NEBR.
Columbus
Lincoln
Burlington
Springfield
Topeka
KANS.
Kansas Cy.
Jefferson Cy.
St. Louis
MO.
Shawneetown
Cairo
Paducah
Nashville
TENN.
Memphis
Little Rock
ARK.
Red R.
Dallas
Ft. Worth
TEXAS
Austin
Houston
Galveston
Laredo
Matamoros
Rio Grande
Mississippi R.
MISS.
Jackson
ALA.
Montgomery
Atlanta
GA.
Savannah
Jacksonville
FLA.
Tampa
Key West
Tallahassee
New Orleans
LA.
Chicago
Peoria
Toledo
Cleveland
OHIO
Pittsburg
Wheeling
Cincinnati
Louisville
Frankfort
KY.
Charleston
Lynchburg
Norfolk
Richmond
Washington
Baltimore
Philadelphia
Trenton
New York
Scranton
Hartford
Providence
Boston
Concord
Portland
ME.
Montpelier
Albany
Buffalo
Niagara
L. Erie
L. Ontario
Ottawa
Montreal
St. Lawrence R.
Georgian Bay
Mackinaw Cy.
L. Michigan
L. Huron
Frankfort
MICH.
Lansing
Milwaukee
Madison
WIS.
Minneapolis
St. Paul
Superior
Duluth
L. Superior
Escanaba
MINN.
Ottawa R.
Ottawa
Bristol
Raleigh
N. CAR.
Columbia
S. CAR.
Charleston
Atlanta
Savannah
Jacksonville
Tallahassee
Key West
Sacramento
Carson Cy.
San Francisco
CAL.
Keeler
Los Angeles
San Diego
NEV.
Salt Lake Cy.
Ogden
Great Salt L.
UTAH
Cheyenne
COLO.
Denver
Pueblo
Santa Fe
Albuquerque
N. MEX.
ARIZ.
Phoenix
Yuma
Benson
Colorado R.
El Paso
Guaymas
Mazatlan
Gulf of California
Pennsylvania R.
Pittsburg, Ft. Wayne & Chicago R.R.
Pittsburg, Cincinnati, Chicago & St. Louis R.R.
Baltimore & Ohio R.R.
Philadelphia & Reading R.R.
Chesapeake & Ohio R.R.
Norfolk & Western R.R.
Long Island R.R.
Hill Group
Chicago, Burlington & Quincy R.R.
Burlington & Missouri River R.R.
Great Northern Ry.
Northern Pacific Ry.
The Erie Railroad.
BAHAMA IS.
GOULD GROUP
SHOWN IN BLUE LINES
Wabash R.R.
Missouri Pacific Ry.
St. Louis, Iron Mtn. & Southern Ry.
International & Great Northern Ry.
Wheeling & Lake Erie Railroad
Western Maryland Railroad
West Virginia Central
Texas & Pacific Railway
Denver & Rio Grande Railroad
L.L. POATES ENGR'G CO., N.Y.

a result of this restrictive legislation most of the Mississippi Valley States and those of the South to-day have mandatory railroad commissions, that is, commissions with power to prescribe and enforce maximum rates.

In the eastern and central States, railroad commissions with supervisory powers merely have been created, whose duty it is to investigate and make public all charges against the railways. Of this type of commission the best example is that of Massachusetts. "The exceptions to this general practice are significant. Eight Cordilleran States and two territories where the need of transportation facilities overrides every other consideration, and five eastern States where the railroad interests rule the legislatures, have as yet provided no supervising commission." [1] With the growth of the great railway systems the State governments have become clearly inadequate to cope with the problems involved, and, while the state commissions have done valuable service, broader powers of control are necessary. These can be exercised only by the Federal government.

276. Federal regulation of rates. — Federal legislation on the subject of railroads dates back to 1866, but no serious attempt at regulation was made until the passage of the Interstate Commerce Act of 1887. This prohibited discrimination, pooling, a greater charge for a short than for a long haul, required publicity of rates, and provided for a commission of five [2] persons, to whom should be entrusted the investigation of alleged violations of the act. The commission sits as a tribunal to hear complaints and render decisions upon cases brought before it; the enforcement of its decisions is secured through the courts, to which the railroads can appeal from the commission. According to the original act the findings of the commission were to be final as regards matters of fact, but in 1889 the Supreme Court decided that new evidence could be introduced on appeal, and has thereby, by taking up cases *de novo*, greatly lessened the authority of the

[1] Coman, p. 324. [2] The number was later increased to seven.

commission. It has likewise modified the interpretation of other sections of the act, so as to deprive the commission of most of its original power. Some of the difficulties in the Federal regulation of interstate commerce were removed by the Elkins and Nelson acts already referred to, while the Hepburn Act of June 29, 1906, goes further than any previous act in enlarging the powers of the commission. This forbids the granting of free passes, prohibits railroads from carrying their own products, places private car lines, etc., under the control of the commission, and provides that it shall "determine and prescribe what will be the just and reasonable rate"; the final control over rates is, however, left with the courts.

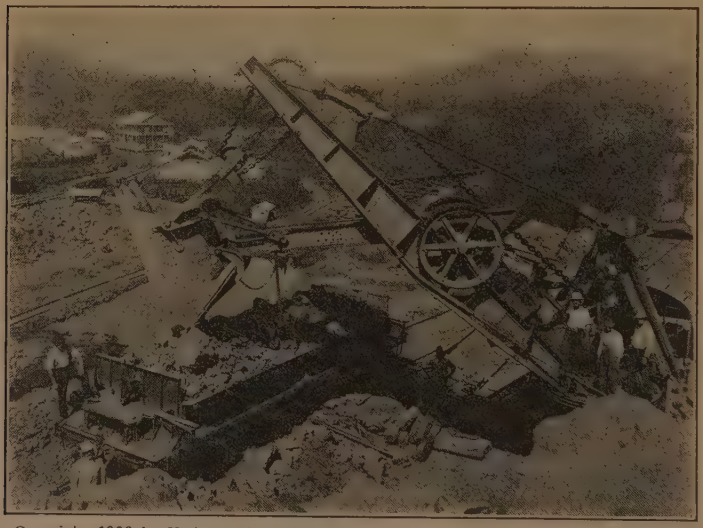
In spite of its limited powers the Interstate Commerce Commission has resulted in much good; by its numerous decisions (about 1500) it has developed a body of more or less authoritative rules for the regulation of railways; the right of the Federal government to control them, at first disputed, has now been thoroughly established; and finally there has been created a system of machinery for dealing with them which can easily be enlarged or entrusted with greater powers if that seems desirable. The principle and the character of governmental regulation of railways in the United States have been determined, and the problem of the future is simply how far that control shall go.

277. Development of electric interurban railways. — The growth of electric railways outside of cities belongs almost entirely to the period since 1895, and has reached its highest development in the central States of Ohio, Michigan, and Indiana. Almost 7000 miles of such lines existed in 1902, and the number has grown rapidly since that time. The roads possess certain advantages over steam roads which have made them very popular: owing to the fact that no locomotives are necessary, the cars can be sent off singly and hence frequent service is possible; frequent stops, with comparatively high speed, are also made possible by this same cause; fares

are much lower because of the greater economy of construction and operation. The convenience of the trolley has greatly increased the amount of travel in the districts through which they have been built, and has contributed largely to the interchange of business between the cities and the small towns and farms. The interurban electric lines have had a distinct socializing effect upon farm life, breaking down its isolation, introducing higher standards, and broadening the horizon of the country dwellers. They afford a profitable outlet, by means of the express and freight trolley, for the produce of the farm, bring the superior school facilities of the town within reach of the country home, and render the markets and shops easily accessible. As yet the possibilities of the freight trolley have not been fully exploited, but the future will doubtless see a great development of this phase of their activity.

278. Canals and river routes. — The diversion of traffic from the canals and rivers in the United States, which began before the Civil War and proceeded with accelerated speed after it, has shown no signs of abatement. Although tolls were abolished on the Erie Canal in 1882, the percentage of the entire freight movement across New York State which was carried on the canals steadily declined — to 12 per cent. in 1890 and 5 per cent. in 1900. Partly responsible for this falling off was the absolute decrease in the amount of lumber and forest products carried across the State, which had generally gone by the slower route; but more important was the lack of improvements in equipment and facilities. The growing traffic in grain and iron was diverted almost completely to the railroads, which meanwhile had made extensive improvements. The vote of the people of the State of New York in 1903 to expend $101,000,000 in deepening and improving the Erie Canal will doubtless restore some of its former importance. While most of the canals in the country have been bought up by the railroads and permitted to sink into decay, there is to-day a growing

realization of their usefulness as regulators of railroad rates and as adjuncts to the river and lake routes for the carriage of heavy and bulky traffic. The purchase of the Panama Canal for $50,000,000 by the United States government and the decision to build an isthmian canal emphasizes this tendency.



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AMERICAN STEAM SHOVEL AT PANAMA

When completed this canal will be extremely important, and will change the course of much of the world's trade. Most of the through traffic now going by way of the Straits of Magellan will be diverted to the Isthmian route, which will greatly shorten distances. Between New York and San Francisco, for example, there will be a saving effected over the existing water route of 8000 miles.

The river traffic, too, has been cut into by railroad competition, and although of considerable importance still, amounting to some 30,000,000 tons a year on the streams of the Mississippi Valley alone, it has declined both relatively and absolutely. A third of the Mississippi River traffic has been diverted to the railroads in the last twenty years; the relative

volume of traffic by river and rail at St. Louis and New Orleans is shown in the following table:

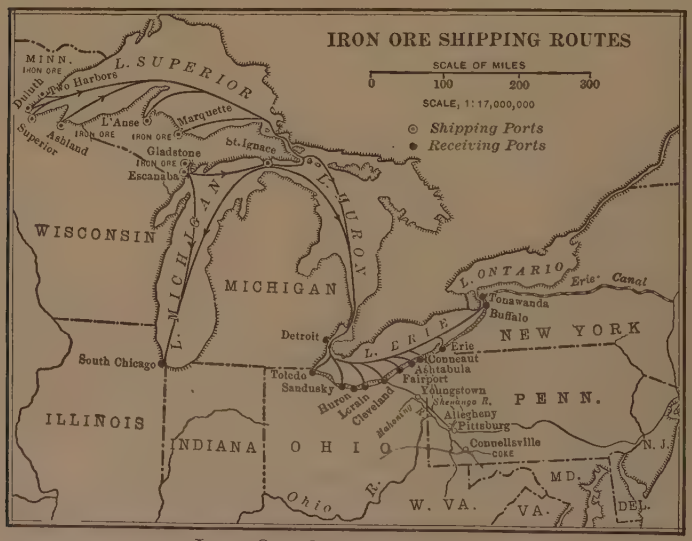
	1880	1890	1900
Tonnage received at St. Louis by river, tons	893,860	530,790	512,000
Tonnage received at St. Louis by rail, tons	6,096,524	9,969,291	15,375,000
Cotton received at New Orleans by river, bales	1,087,522	425,828	343,450
Cotton, received at New Orleans by rail, bales	627,577	1,722,473	1,935,177

By 1899 the cotton receipts by river at New Orleans were only 15 per cent. of the total cotton receipts of that place as against 64 per cent. in 1880, showing a large decline in the river trade of the most important staple of that region.

279. Lake transportation. — The commerce on the Great Lakes, alone of our water-ways, shows an immense increase; in 1902 the total volume of freight amounted to 55,045,636 tons. The proximity of the lake ports to important areas of production, as of grain, iron, copper, lumber, and similar products, has made them the natural highway of commerce for the Northwest. "Several factors distinguish the commerce of the Great Lakes from all other water-borne traffic in which American vessels are engaged. . . . In the first place, the carrying trade of the Great Lakes not only embraces, almost exclusively, raw material, but is made up principally of a limited number of commodities. Secondly, it is to a great extent a through traffic — the number and volume of cargoes transported from a lower to an upper Lake port, so called, or *vice versa*, greatly exceed the short coastwise hauls. Coal, both anthracite and bituminous, is shipped from the various ports on the south shore of Lake Erie to ports on Lakes Superior and Michigan, while flour and grain, iron ore, copper, and lumber make the

trip from Lake Superior and Lake Michigan ports to unloading docks on Lake Erie."

The tonnage that passes through the St. Mary's Falls canal, which may properly be considered as a link in the chain of lakes, increased from 1,734,890 tons in 1880 to 36,617,699 in 1905. But not merely has the tonnage of the lake fleet increased; the size and capacity of the vessels engaged in the



IRON ORE SHIPPING ROUTES

The iron ore from the Lake Superior mines is shipped by boat to Chicago, Buffalo, and the ports on southern Lake Erie, where much of it is smelted. A large part is shipped further by rail to the manufacturing cities of western Pennsylvania and eastern Ohio, where coal is abundant.

lake commerce has more than kept pace: in 1905 a dozen vessels were built over 500 feet in length, several of which had a capacity of 10,000 tons. These were all steel steamships; in 1886 there were only 6 steel vessels on the Great Lakes; in 1899 there were 296. Almost one third of the entire tonnage of the country is on the lakes.

280. The ocean merchant marine. — As only vessels flying

the American flag can engage in the coastwise trade the merchant marine engaged in domestic commerce has grown steadily, keeping pace with the industrial development of the country. From 2,600,000 in 1880 the tonnage of vessels engaged in domestic trade has increased to over 5,700,000 in 1906. Employment has thus been given to American shipyards, the tonnage

THE KAISERIN AUGUSTE VICTORIA

This vessel is 700 feet long, 77 feet wide, and 54 feet deep, with a gross tonnage of 25,000 tons and a displacement of about 43,000 tons. She has accommodations for 550 first-class, 350 second-class, 300 third class and 2,300 steerage passengers — making altogether a floating city of no inconsiderable size. Her speed is about 18 knots, and the time taken in crossing the Atlantic Ocean about seven days. With great depth of hold for freight and large carrying capacity for passengers this type of steamship expresses the modern economic demands in combined transatlantic passenger and freight service.

of vessels built having doubled in the past twenty years. In this branch of our merchant marine the steel sailing schooner has been able to hold its own against the steamer, owing to economies by the use of steam in manipulating sails and in loading and unloading cargoes. Coal, lumber, cotton, and similar bulky commodities, constitute the chief items of the

coastwise commerce, but even in the carriage of these articles the competition of the railroads is severely felt.

The tonnage of vessels engaged in the foreign trade has meanwhile continued the same steady decline upon which it entered with the outbreak of the Civil War. From 1,352,810 tons in 1880 it fell off to 826,694 tons in 1900.[1] On the other hand, foreign vessels with a tonnage of over 5,000,000 tons touch annually at our ports and carry about 90 per cent. of the foreign commerce of the United States. Since the Spanish-American war, however, ship-building has taken on new life; the government has placed orders with domestic shipyards for a number of new war vessels, and at the same time private capital has entered the field again. In 1903 the first of two immense vessels, 630 feet long, with a gross tonnage of 22,000 tons each, was launched at New London; these are the largest vessels ever built in the United States and are designed for trade from Seattle to the Orient in connection with the Great Northern railroad.[2] The purchase, too, by Mr. J. P. Morgan of the Leyland line of steamers shows that we may expect a growing investment of American capital in the ocean carrying trade in conjunction with our systems of railroad transportation. There is little reason to doubt that, with the great development of our iron and steel industries, the near future will see again the upbuilding of an American merchant marine. By 1906 the tonnage of vessels engaged in foreign trade had increased to 939,486 tons.

281. Means of communication. — Almost as necessary as an adequate system of transportation lines for carrying on our enormous domestic trade are the means of communication by which business men may inform themselves of industrial conditions and direct distant enterprises. Indeed, without the

[1] Even this small amount is said to exaggerate our strength. Mr. Neall, a shipping merchant of Philadelphia, stated before the Industrial Commission in 1900, that less than 300,000 tons were suitable for trans-oceanic traffic. Report Ind. Com., IV, 168.

[2] One of these vessels was subsequently wrecked in Japan, in May, 1907.

telegraph and telephone our great trusts and railroads could not be conducted along existing lines. Improved means of transportation, communication, and credit have combined to make possible our nineteenth-century industry. The importance of the telegraph is only partially indicated by the number of messages sent, which have more than trebled in the last twenty years — from 29,000,000 in 1880 to about 100,000,000 at present. The business is completely monopolized by two large companies, but these reach practically every point in the United States. American ingenuity has also applied telegraphy to various other uses, such as fire-alarm boxes, stock tickers, district messenger service, etc. Ocean cables cross the Atlantic and Pacific Oceans and afford speedy communication with every part of the world. The latest and most important development of telegraphy, the so-called "wireless," threatens now to supplant the cables, and has already been adopted for use by the United States signal service, the navy, and several steamship lines.

Of more general service for short distances is the telephone. Up to 1894–95 the Bell telephone system had a practical monopoly of the field, but when its patents began to expire independent telephone exchanges sprang up all over the country, and especially in the middle and northwestern States. In 1880 the census reported 54,319 receiving telephones in the country; in 1900 the Bell system reported 1,080,000 subscribers, while the independent exchanges had 700,000 more. Taking the United States as a whole, there was in the latter year 1 telephone to every 40 persons of the population. The expansion of the postal service of the country was equally striking: from 42,989 post-offices in 1880, the number grew to 76,688 in 1900; in the latter year the post-office handled nearly 14,000,000,000 pieces of mail matter. The establishment of the system of rural free mail delivery, together with the telephone and trolley line, has done much to break down the rural isolation of many agricultural districts and to improve the farmers' condition. Improved means of transportation have

been accompanied too by a growth in the number of books, newspapers, etc., as it has been one of the main factors in their speedy and economical distribution. The newspapers of the United States have increased from 9723 in 1880 to 23,146 in 1905.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XXIII

1. Why are discriminations granted by railroads? Do you know of any cases where this was done? [Industrial Com. Rep., IV, 5–7: Parsons, Heart of the Railroad Problem, 17, 23.]

2. Is any provision made by the railroads for indemnifying employees who meet with accidents while in their service? [5th An. Rep. U. S. Dept. of Lab., 1889; Industr. Com. Rep., XVII, 867–890; H. C. Adams, Slaughter of Railway Employees, in Forum, XIII, 500.]

3. What is pooling? Should it be permitted? [Hadley, 74, 91, 143; Johnson, 228–243, 256; Noyes, Amer. Railroad Rates, 146.]

4. What is meant by a business of "increasing returns"? Is the railroad a business of this kind? [Adams, Sci. of Fin., 394; Marshall, Princ. of Econ. book 4, chap. 3.]

5. Do the electric interurban lines seriously compete with the steam railroads in your home? What has been the effect? [R. Morris, Trolley System in Ohio, in Atl. Mo. XCIII. 730; F. T. Carleton, The Electric Interurban Railroad, in Yale Rev., Aug., 1904, p. 179; Street and Electric Rys., 1902. (Spec. Rep. of Census Office), 110, 116; Bogart, Social and Economic Effects of the Electric Interurban Railway, in Journ. of Pol. Econ., Dec., 1906.]

6. What objections are there to the granting of passes to public officials? to private individuals?

7. What was the so-called granger legislation? Why was it passed and what effects did it have? [C. F. Adams, The Granger Movement, in No. Amer. Rev., CXX, 394; Moody, Land and Lab., chap. 3; Martin, part 6.]

8. Will the opening of the Panama Canal probably have any effect on existing routes of commerce? On railroad rates? Has its construction been opposed by any interests? [Trotter, 377; Adams, Com'l Geog., 44.]

9. Compare the shipping through the "Soo" and the Suez Canals; which is the larger and why?

10. Do you think the canals in the United States should be improved and enlarged? [Johnson, Inland Waterways; Johnson, Ocean and Inland Water Transp., chap. 24, 25.]

11. Should subsidies be granted by the government to build up the American merchant marine? [Marvin, chap. 18; McVey, Frye Subsidy Bill, in Yale Rev., II, 38.]

12. Describe the "shipping trust." [Gunsburg, The Atl. Shipping Combine, in Econ. Journ. XIII, 197; Meade, Capitalization of the Internat'l Merch. Mar. Co., in Ripley, Trusts, Pools, and Corps:, chap. 6; Chamberlain, The New Cunard Steamship Contract, in No. Amer. Rev., CLXXVII, 533.]

13. Foreign-built vessels cannot now be admitted to American registry; do you think the policy of "free ships" would be better? [Wells, Our Merch. Mar., 209; Kelley, Question of Ships, chap. 5; Bates, Amer. Mar., 52–54, 375–8.]

14. Discuss the importance of good wagon roads, and the recent good roads movement. [J. W. Jenks, Road Legislation for the American State, in Publ. Amer. Econ. Ass., vol. 4, no. 3; Shaler, Amer. Highways, chap. 13; Trotter, 139.]

15. What has made Chicago the largest railroad center in the world? [Rocheleau, Geog. of Com. and Ind., 221–9; Trotter, 53–4, 114–5, 143; Adams, Com. Geog., 152–3.]

16. Why are the following cities important — Duluth, Buffalo, Pittsburg, Galveston? [Rocheleau, chaps. 18, 19; Adams, Com. Geog., 95, 152–3, 155–7; Trotter (Index).]

17. What improvements, if any, could be made in the postal service? [Cushing, The Story of Our P. O.; Hyde, A Hundred Years by Post; Cowles, a General Freight and Passenger Post; Bliss, Ency. Soc. Ref., art. Postal Savings Banks.]

18. Should the telegraph be owned and operated by the Federal government? [Bliss, Ency. Soc. Ref., art. Telegraph; Hubbard and Green, in No. Amer. Rev., CXXXVII, 422–434, 521–535; Means, in No. Amer. Rev., CXXXIX, 51–66; Parsons, in Arena, Jan., 1896.]

SELECTED REFERENCES. CHAPTER XXIII

**—— Industrial Commission Report, vols. 4, 10, 17, 19.
**—— Interstate Commerce Commission: Reports, and Statistics of Railroads.
*Johnson: American Railway Transportation, 28–33, 213–257.
*Marvin: American Merchant Marine, chaps. 16, 18.
*Meyer: Railway Legislation in the United States.
*Shaler: American Highways, chap. 13.

Bates: American Marine, chaps. 17, 27.
Dixon: State Railroad Control.
Johnson: Ocean and Inland Water Transportation.
Leroy-Beaulieu: The United States in the Twentieth Century, Part 4.
Parsons: Heart of the Railroad Problem.

CHAPTER XXIV

CURRENCY AND BANKING (1860-1906)

282. The issue of legal tender notes. — The monetary history of the United States in the period beginning with the Civil War is so important and so intimately connected with the economic history of the time that it becomes necessary at this point to treat the subject of currency and banking with greater fulness than has until now been thought desirable. The issue of legal tender paper money by the government, the establishment of the national banking system, and the silver legislation had far-reaching economic effects upon industry, wages, and the distribution of wealth, as well as striking financial, political, and social results. The connecting principle unifying the monetary history of the United States during the thirty-five years after the Civil War was a persistent demand for more money, and the endeavor to force the Federal government to supply it. Public attention was successively directed to paper money, to silver, and finally to bank-notes as the best method of meeting this need. Only recently has a better appreciation of the laws of money and of the use of credit aided in the partial solution of the problem.

From the adoption of the Constitution to the Civil War the United States government had never issued paper money; gold and silver alone had been made legal tender, and after the final establishment of the independent treasury system in 1846, they alone had been used by the government in its financial dealings. But soon after the outbreak of the war the necessities of the treasury department led to the issue of legal tender paper money directly by the government, to a total amount of $450,000,000. At the time these notes were first issued the whole country was using bank-notes issued by some

sixteen hundred banking institutions, in addition to gold and silver. Owing chiefly to unwise action on the part of the treasury department, specie payments had been suspended by both the banks and the treasury at the end of 1861. The United States notes, therefore, were not redeemable in coin, but were true inconvertible paper money. The denomination of the lowest notes issued was steadily reduced from $10 in the first to $5 in the second, and finally to $1 in the third issue, while subsequently provision was made for fractional paper currency, so that within two years from the commencement of the war the country was completely provided with a paper currency issued directly by the government.

283. Financial effects. — One of the first effects of the issue of United States notes or greenbacks was their depreciation or fall in value, with an accompanying rise in the prices of commodities, and a fluctuating premium on gold. The depreciation of the currency was increased by the expansion of bank issues and deposits, and was influenced by the success of the Union army, but in general was proportioned to the inflation produced by over-issue. The following table [1] shows the depreciation of the currency by months, measured in gold:

Month	1862	1863	1864	1865
January	$98	$69	$64	$46
February	97	62	63	49
March	98	65	64	57
April	98	66	58	67
May	97	67	57	71
June	94	69	47	74
July	87	77	39	70
August	87	79	39	70
September	84	74	45	69
October	78	68	48	69
November	76	68	43	68
December	76	66	44	68

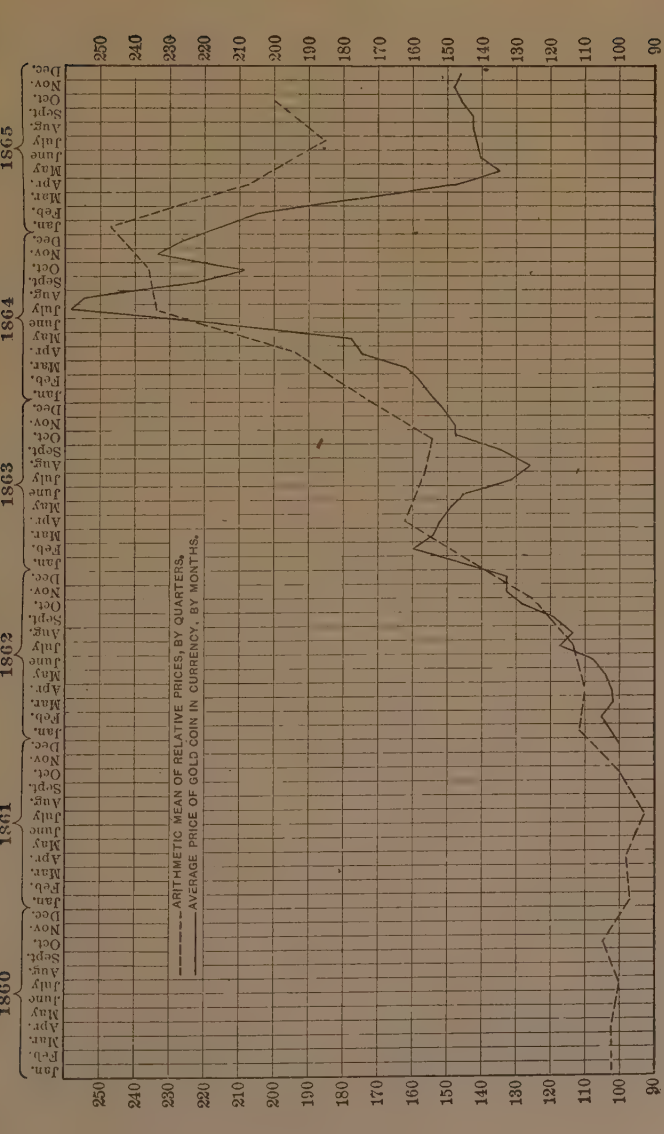
[1] Dewey, Financial History of the United States, p. 293.

While the issue of greenbacks was justified on the ground of the financial necessity of relieving the treasury from its embarrassments, the final cost of the war was immensely increased by their use. Owing to the depreciation of the greenback the government was compelled to pay higher prices for commodities and labor, while the returns from bonds, measured in gold, steadily fell off, though the nominal price remained high. In both these ways, therefore, there was a great increase in the cost of conducting the war; the total effect has been estimated at between $528,000,000 and $617,000,000. But in addition to this direct and calculable increase there were other indirect effects, such as the greater extravagance of Congress in appropriations induced by the easy-going paper money policy.

284. Economic effects. — Large as was the financial addition to the cost of the war to the government as a result of the issue of greenbacks it was small when compared with the burdens imposed upon the people in their private business relations by inflated prices. The increase in relative prices and wages during the war, according to the Aldrich report, was as follows:

Year	Prices Simple Averages	Money Wages Simple Averages	Real Wages Simple Averages
1860	100.0	100.0	100.
1861	100.6	100.8	100.
1862	117.8	102.9	87
1863	148.6	110.5	74
1864	190.5	125.6	66
1865	216.8	143.1	66
1866	191.0	152.4	79

It is evident from this table that, if we take the year 1860 as the base and call general prices in that year 100, general prices continued to rise steadily during the war. The rise affected various articles very differently, however, as the price



FLUCTUATIONS IN THE CURRENCY PRICES OF COMMODITIES AND GOLD, 1860–65.

of some of them increased much more rapidly than of other agricultural products did not advance as quickly or as much as manufactured commodities. Wages lagged far behind prices in obedience to a general economic law, and the real wages of the laborers of the country were accordingly greatly reduced. This entailed discontent, labor disputes, and often much real hardship and suffering. The issue of paper money acted like a tax upon the people, but a most unfair tax and one for which there was no commensurate return to the government. In so far as the government was an employer of labor there was a certain saving at the expense of the workers, but this was more than offset by the loss of the most efficient employees. The wages of the soldiers remained at $13 a month until May 1, 1864, when it was raised to $16, a change which fell far short of the actual increase in the cost of living. In general, workingmen were able in time to secure advances in their wages, especially in the better organized trades; in some cases, however, as that of schoolteachers, ministers, and salaried persons in general, it was difficult to make both ends meet. To some extent it was possible to obviate the pressure of higher prices by substituting some lower-priced article for the more expensive one, but in so far as this necessitated a lowering of the standard of living, it was a most regrettable result of the paper money policy.

285. Contraction and resumption of specie payments. — Upon the conclusion of the war, it was thought that the greenbacks, whose issue had been advocated as a temporary measure, would be withdrawn and specie payments resumed. In 1866 the policy of retiring a certain amount of the greenbacks monthly was begun, and continued until the total amount outstanding had been reduced to $356,000,000; at this point Congress prohibited the further retirement of the notes by act of February 4, 1868. The rise in the value of the greenback and the reorganization of business after the conclusion of peace had brought about a commercial depression, which was popu-

larly attributed to the policy of contraction. Many persons now began to demand that the greenbacks should not be retired, but should be retained as a permanent part of our monetary system. During the serious panic of 1873, heavy pressure was brought to bear upon the Treasury to relieve the banks and the business community, by reissuing the greenbacks which had been accumulated but not destroyed; accordingly, the Secretary reissued $26,000,000 in exchange for bonds. The clamor for cheap paper money now became louder, and in 1874 resulted in the passage by Congress of the inflation bill, providing for the increase in the issue of greenbacks to $400,000,000. When this was vetoed by President Grant, the amount was fixed at the circulation then outstanding — $382,000,000.

The agitation for an irredeemable paper currency led in 1876 to the formation of the National Greenback Party, which reached its greatest strength in 1878, when it polled over 1,000,000 votes, chiefly in the newer West and South. Before this, however, the Republican Party had passed the Resumption Act of January 14, 1875, which provided for the accumulation of a gold reserve from surplus revenues and the sale of bonds, for the purpose of redeeming the greenbacks; provision was also made for a partial retirement of these notes. Before the plan could be carried through Congress again interfered, in 1878, to check the policy of contraction, and by the act of May 31 fixed the amount of greenbacks at the number in circulation on that day, $346,681,016, at which point it has ever since remained. The resumption of specie payments was rendered certain by the accumulation of a gold reserve of $133,000,000, which a fortunate increase in our grain exports enabled us to keep and enlarge. On January 1, 1879, the Treasury began the redemption of greenbacks in gold. Owing to the provisions of the law, however, the greenbacks, when redeemed, were not to be destroyed, but "must be reissued." They remained, therefore, a permanent part of our money supply.

286. The national banking act. — When the war broke out the circulating medium of the country consisted of coin and of bank-notes. These notes were issued by some sixteen hundred institutions, operating under State laws, and had only a local circulation at best, while many of them were nearly worthless. To replace these and provide a safe national currency of uniform value was highly desirable, and was one of the causes which led to the establishment of the national banking system. More important was the necessity of finding a market for the United States bonds, whose sale formed the chief reliance of the government for carrying on the war. To secure this end it was proposed to require the banks to base their note issues upon government bonds. This plan was carried out by the act of February 25, 1863.

The characteristic point in the new system was the provision that the banks organizing under a Federal charter must buy United States bonds and deposit them with the government; they were then permitted to issue bank notes up to ninety per cent. of the par value of the bonds. Other provisions regulated the capital, the liability of stockholders, the amount of reserve, examination of accounts, etc. Owing to the slowness with which banks came into the system, the issue of notes by State banks was prevented by a tax of 10 per cent. annually (act of March 3, 1865). A monopoly of note-issue was thus secured to the national banks. The other functions of banking were left open to banks chartered by State authority and to private banks.

287. History of the national banking system. — The circulation of the national banks did not increase as rapidly as had been expected; in 1873, when high-water mark was reached, the outstanding circulation amounted to only $339,000,000. This failure to expand was chiefly due to the rapid rise in the price of government bonds, which made it more profitable to the banks to sell the bonds at a profit and retire their notes, than to hold the bonds and keep their notes in circulation. By 1876 the circulation had been reduced to $291,000,000, and

while it increased somewhat during the next few years, a steady decline set in about 1883 which continued uninterruptedly until the bank-note circulation had declined to $168,000,000 in 1891. This shrinkage was brought about largely by the payment of the national debt as it fell due and the consequent retirement of the bonds on which the notes were based. An effort was made in the act of July 12, 1882, to make the conditions of note-issue more profitable to the banks, but the hostility to the national banks was still so great that little was done.

During the next two decades various proposals were made to secure a larger and more elastic note-issue: the repeal of the tax on circulation; funding of the outstanding United States bonds into other bonds bearing a lower rate of interest and running for a longer time; deposit of approved State or municipal bonds instead of national bonds; issuance of notes by banks on their general credit, to be secured by a general safety fund, to which all the national banks should contribute. There was, however, no further legislation upon the subject, and with the steady reduction of the debt it seemed as though the national bank-note circulation would soon have to disappear. But the act of March 14, 1900, gave a new lease of life to the system: circulation might be issued to the full face value of the bonds deposited; part of the existing national debt was to be refunded in new two per cent. thirty year bonds, and upon all new circulation based on these bonds the tax was reduced from one to one half per cent. per annum. At the same time that note issue was made more profitable, the minimum amount of capital was reduced from $50,000 to $25,000 in towns with a population not exceeding 3000. These inducements led to a considerable increase in the number of national banks, as well as to an increased circulation. Little was done by the act, however, to make the monetary system more elastic, while the final reform of the national banking system was simply postponed for a generation. The following table presents a few of the more important statistical

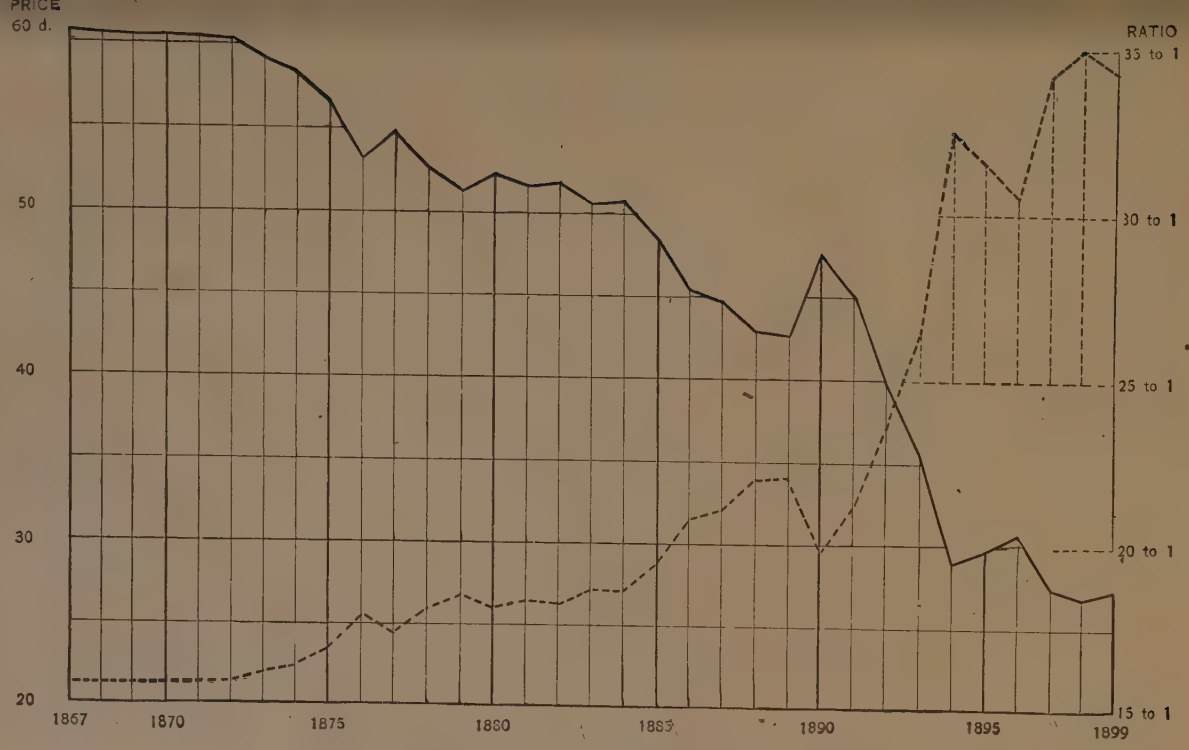
facts relative to all banks for the year ending September 1, 1905:

Kind of Banks	Number	Capital	Deposits	Circulation
National	5505	$776,175,576	$3,989,522,835 [1]	$485,521,671 [1]
State	7794	379,756,040	2,365,209,630	.....
Loan & Trust Cos.	683	243,133,622	1,980,856,737	.....
Savings	1237	26,191,294	3,093,077,357	.....
Private	1028	22,518,193	127,937,098	.....
Total	16247	$1,447,774,725	$11,556,603,657	$485,521,671

288. The demonetization of silver. — In response to a suggestion made at the international monetary conference, held in Paris in 1867, a movement was begun in the United States in 1869 to revise the mint laws. These had not been changed since 1837, and some of the coins had become obsolete. A bill was accordingly prepared by the deputy comptroller of the Treasury, submitted to experts for advice, and introduced into the Senate on April 25, 1870. After debating the measure for five sessions Congress finally enacted it into law, February 12, 1873. The most important provision of the act was the section dropping the standard silver dollar from the list of coins to be coined by the United States. At the time the act attracted little attention, for we were using neither silver nor gold then, greenbacks and national bank-notes being the only forms of money in circulation. Not only that, but for forty years the silver dollar had not been in circulation, as the bullion in a silver dollar was worth about $1.02 in gold, and it was therefore more profitable to melt up the silver dollars than to keep them in circulation. In the seventy-nine years since the establishment of the mint in 1792 only 8,031,238 silver dollars had been coined and not one of these was in circulation.

A number of causes soon combined to bring the demone-

[1] November 9, 1905.



FLUCTUATIONS IN VALUE OF SILVER, 1867–1899.

Price of Bar Silver ——————
(in London, per ounce sterling, 0.925 fine.)
Ratio of Gold to Silver - - - -

tization of silver to general notice. The adoption of the gold standard and the sale of her silver by Germany (1870–71), the limitation of the coinage of silver by the Latin Union (1873), the demonetization of silver in Holland and the Scandinavian peninsula (1875), together with a great increase in silver production from newly discovered mines in Nevada, brought about a fall in the price of silver. By 1876 the silver dollar was worth only ninety cents, and the inflationists who desired more money, defeated in their efforts to secure the issue of additional greenbacks, began to demand the coinage of silver. In this demand they were strongly seconded by the silver mine owners, who were bringing a largely increased supply to a falling market. There were also many who thought that the panic of 1873 and the prolonged stringency in the money market was due to the "crime of 1873," and who honestly believed that the country needed more money in circulation. As a result of these causes there began about 1876 a vigorous agitation for the "remonetization," or free coinage, of silver.

289. The Bland-Allison Act of 1878. — Under the leadership of Mr. Bland, an ardent advocate of silver, a bill was passed by the House of Representatives, November 5, 1877, providing for the free and unlimited coinage of silver at the ratio of 16 to 1. In the Senate, where the free coinage sentiment was not so strong, it was amended so as to provide for the coinage of a limited amount of silver, and in this form finally became law, February 28, 1878. The act provided for the purchase of silver bullion by the Secretary of the Treasury, not less than $2,000,000 nor more than $4,000,000 worth per month, and its coinage into silver dollars of $412\frac{1}{2}$ grains. Provision was also made for the issue of silver certificates in denomination of $10 and upwards, upon deposit of silver dollars. As it was found impossible to keep more than a small part of the silver dollars in circulation, the lowest denomination of the silver certificates was reduced in 1886 to $1, and in this form most of the silver purchased went into circulation. The minimum amount of silver provided by the law was purchased each month; this

resulted in an average increase in the circulating medium of the country of about $30,000,000 per annum. During the twelve years of the operation of the Bland-Allison Act there were coined 378,166,000 silver dollars.

We have seen that the amount of greenbacks had been permanently fixed in 1877, and that the national bank-note circulation steadily declined during the eighties. As the industrial development of the country was proceeding during this period at an unprecedented rate, with the exception of the short depression of 1884, it is probable that this addition to our money supply merely kept pace with our growing needs. It is probably also true that if this silver had not been coined its place would have been filled largely, if not wholly, by the importation of gold.

290. The Sherman Act of 1890. — By 1890 the silver advocates were strong enough to force more favorable action in Congress, and on July 14 of that year they secured the passage of the so-called Sherman Act. This provided for the purchase by the Secretary of the Treasury of 4,500,000 ounces of silver each month, and the issuance in payment therefor of treasury notes of full legal tender character. These notes, which were based upon deposit of silver bullion, were nevertheless made redeemable in either gold or silver coin. The amount of silver purchased under this act was almost double that required by the silver act of 1878, amounting to about $50,000,000 per annum. During the three years of its operation, until its repeal on November 1, 1893, there were issued $155,931,002 in treasury notes. If the additions to the currency under the previous law were sufficient, the increased supply forced upon the country by the Sherman Act was too much. Gold began to be crowded out of circulation; in the first six months of 1891 over $70,000,000 in gold was exported from the United States. Much of this gold was drawn from the Treasury, and the gold reserve, which had been created under the resumption act for the redemption of greenbacks, was reduced by June, 1891, to $118,000,000; by January, 1894, it had fallen below $68,000,000.

Doubts soon began to be entertained as to the ability of the government to redeem its promises, and the presentation of greenbacks and treasury notes at the treasury for redemption in gold began on an unprecedented scale. At the same time the revenues of the government were greatly reduced by the

GOLD DREDGE

The picturesque miner with his old fashioned pan has given place on most of the western rivers, where gold is found, to the gold dredge. This machine works its way up a stream, sucking up the gold-bearing sand before it by hydraulic pressure if it is fine enough, otherwise digging up the earth and gravel by a continuous chain of buckets. After the gold has been separated from the gravel, the latter is dumped behind the boat or on either side. A dredge will work to forty feet below the water line, and will stack tailings forty feet above it, treating 100 to 120 tons an hour. Farmers complain of the disfigurement of the stream, the frequent diversion of its course, and the destruction of the soil on either side, as results of dredging.

passage of the McKinley and Wilson tariff bills, while extravagant appropriations on the part of Congress prevented the accumulation of funds to meet this drain. Partly as a result of these causes, but more especially as the result of over-speculation, inflated credit, and over-investment of capital in risky enterprises, the panic of 1893 broke upon the business world.

291. The panic of 1893. — The financial crisis of 1893 was one of the most severe the country had ever experienced; trade and industry were disorganized, and every department of industrial life was affected. The price of silver fell greatly, owing to the closing of the India mints; western silver mines were shut down, and their employees thrown out of work. During the year 573 banks and banking institutions failed, mostly in the West and South. Gold and other forms of currency were hoarded and a premium of 4 per cent. was offered by money-brokers for cash. Commercial failures increased greatly; from 4171 in the six months, April 1 to October 1, 1892, they grew to 8105 during the same period in 1893, with liabilities of $284,663,624, as against $41,110,322 in the previous year. Several important railroad systems — the Philadelphia and Reading, the Erie, the Northern Pacific, and the Union Pacific — failed; one fourth of the railway capital of the country was in the hands of receivers; earnings fell off and new construction was suspended. The production of both coal and iron declined in consequence of the lessened demand. Finally, the farmers were involved in the general distress by the ruinous failure of the corn crop in 1894, and the falling off of the European demand for wheat, the price of which fell to less than fifty cents a bushel. The want and distress were general; relief work and assistance was provided in most of the large cities for the unemployed. Strikes, riots, and labor demonstrations, such as the Chicago strike and Coxey's army, evidenced the wide-spread nature of the distress and the industrial unrest.

The uncertainty as to the ability of the government to redeem the greenbacks and treasury notes in gold prolonged the business unrest; to secure the necessary gold for this purpose, and to meet current deficits, the Treasury sold bonds amounting to $262,000,000 in the years 1894–96, and was able to keep the various forms of money on a parity. The decisive defeat of the free-silver advocates in the elections of 1896 put a practical end to the agitation for cheap money, and restored business confidence.

292. The Currency Act of 1900 and gold discoveries. — Owing to the free-silver sentiment in the Senate it was not possible to enact any legislation reforming the monetary system until 1900. By the act of March 14 of that year, the gold standard was definitely adopted; provision was made for the increase of the gold reserve fund to $150,000,000, and its application exclusively to redemption purposes, while fairly

HYDRAULIC GOLD MINING NEAR TELLURIDE, COLORADO
The placer deposits are generally mined by this process, a powerful stream of water washing the dirt and gravel into sluices, where the heavy gold is held by riffles, and then collected by means of mercury. It is vastly more economical than the old hand methods.

effective though clumsy methods for maintaining the fund were authorized. At the same time the gold discoveries in Alaska in 1898 brought about a great increase in the production of that metal and its circulation in the United States; in the five years between 1898 and 1902 there was coined at the United States mints over $437,000,000 in gold, as against a quinquennial average since 1873 of $258,000,000. This increase in our money supply, together with the ad-

ditions to the bank-note circulation, brought up the per capita circulation from $23.85 in 1893, when the purchase of silver by the government ceased, to $33.86 on July 1, 1907. This has been followed by a great rise in the general level of prices, of over 16 per cent. in the period 1893–1907.

To secure the fullest development of the resources of a country and the freest interchange of commodities and services an adequate supply of the media of exchange is essential. Just how much constitutes enough is, however, a matter of contention. In the undeveloped and sparsely settled sections of our country, where capital is scarce and banking facilities inadequate, there has always been a strong demand for cheap and abundant money. Before the Civil War this took the form of a demand for issues by State banks. When the government began the issue of greenbacks, and especially after the restriction of State bank notes, the inflationists naturally looked to the Federal government for assistance; as they did not regard the national banks with favor they did not wish an increase in the issue of national bank-notes. After the failure of the efforts to inflate the currency by means of new issues of greenbacks, this party naturally turned to the coinage of silver, which was now falling in price. Failing to secure absolutely free coinage of that metal, they were able to provide for the purchase by the United States government, from 1878 to 1893, of practically the entire silver production of the country.

With the filling up of the West, the enormous additions of gold to our money supply, the provision of more adequate banking facilities in the sparsely settled districts, and the enactment of positive legislation on the subject by Congress, it is probable that the demand for further inflation of the currency by direct action of the government has been finally hushed. It must be said that the net results of efforts of the government to provide the necessary money for the people have been disastrous. In the future, we may look for any further additions to our money supply to an increase in the

circulation of gold and to larger issues by our national banks under a revised system. For the maintenance of an adequate supply we cannot do better than trust to the natural laws of trade.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XXIV

1. What was the cost of the Civil War? [Mitchell, Greenbacks and the Cost of the Civil War, in Journ. Pol. Econ., V, 117–156, also in Rep. of Mon. Com., 1898, 445–479; Rand, Econ. Hist., 520; Bolles, Fin. Hist. III, 241–248; Adams, Pub. Debts, 127–133.]

2. How was the war debt paid? [Payment of War Debt, in Rand, Econ. Hist., 522; Bolles, III, 315–320; J. Sherman, Recollections, I, 440; Dewey, 352–358.]

3. Was the issue of greenbacks necessary? [Dewey, 284–290; Rhodes, Hist. of U. S., III, 559–572; Mitchell, History of the Greenbacks; Bolles, Fin. Hist. of U. S., III, chaps. 3, 4, 8; Knox, U. S. Notes, chap. 9; White, Money and Banking, 148–165; Hart, Chase, chap. 9.]

4. Why did the issue of greenbacks drive out gold and increase prices? [Dewey, 292–297; Gide, 237–241; Seager, 309; Bullock, Intro., 234, 249.]

5. Is the issue of government paper money equivalent to an increase of wealth? [Gide, 265–269; Walker, Pol. Econ., 159–174; Mill, Pol. Econ., book 3, chap. 13.]

6. State the monetary demands of the Greenback Party; of the Populist Party. Do you approve of these demands? [McVey, Populist Movement; Dewey, 378–382; Lalor's Cyclopædia, II, 418–419; Atl. Mo., LII, 521–530.]

7. What is the present status of the greenback? [Dewey, 469–471; Taussig, The Currency Act of 1900, in Quart. Journ. Econ., XIV, 394–410; Dunbar, Safety of the Legal Tender Paper, in Quart. Journ. Econ., XI, 223.]

8. Describe the organization and working of a national bank with which you are acquainted. [Dunbar, Theory and Hist. of Banking, 132–141; White, Money and Banking, 406–414.]

9. What provisions exist to secure the safety of the national bank notes? [Dunbar, 167; Dewey, 375, 470.]

10. What is meant by the free coinage of silver? Has it ever existed in the United States? [Watson, chap. 5.]

11. Was the act of 1873 passed secretly as the result of a gold conspiracy? [Laughlin, 92–105; White, 213–223; Watson, chap. 9; Dewey, 403-7; Bullock, Mon. Hist., 110–114; J. T. Cleary, The Crime of 1873, in Sound Currency, III, no. 13.]

12. Why did silver fall in price after 1871? [Laughlin, chaps. 8–12; Watson, 119.]

13. How much did the per capita circulation of money increase from 1878 to 1907? Is it a good thing for a country to have a larger circulation of money? [Hadley, Economics, 214; Walker, Relation of Changes in the Volume of Currency to Prosperity, in Econ. Studies of Amer. Econ. Assoc., vol. 1, no. 1; Walker, Money, Trade and Industry, chap. 4.]

14. Does the government make any effort to secure gold for circulation? Why is it brought to the mint to be coined? Are we likely to get enough if we leave it to individuals? [Bullock, Introduction, 271–274; Seager, Introduction, 366.]

15. Why is the demand for money greater in sparsely settled communities than in thickly settled states? [Bullock, Mon. Hist., chap. 8; Taussig, Silver Situation, 113.]

16. Name all the different kinds of money in the United States and the amount of each in circulation. [An. Rep. of Secretary of Treasury — latest number.]

17. Could you suggest any improvements or reforms in our monetary system?

18. What is the independent treasury system? [Kinley, Independent Treasury System; Lalor, II, 493–496; Encyclopedias.]

SELECTED REFERENCES. CHAPTER XXIV

**Dewey: Financial History of the United States, chaps. 12, 15–17, 19, 20.
*Laughlin: History of Bimetallism in the United States, chaps. 14–17.
*Mitchell: A History of the Greenbacks.
*—— Monetary Commission Report, 1898, p. 138 (silver), 197 (banking), 398 (U. S. notes.)
**Noyes: Thirty Years of American Finance, chaps. 1–3, 8–10.
**Taussig: The Silver Situation.

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CHAPTER XXV

MANUFACTURING FOR HOME USE (1860–1880)

293. The Civil War as an industrial revolution. — We have already seen that the two decades prior to the Civil War had witnessed a rapid growth in the United States in manufacturing industries, which were yearly becoming more adequate to meet the home demands. It was certain that a nation which possessed the wonderful natural resources of this country would not long continue to purchase her manufactured commodities abroad. Sooner or later she would manufacture for herself all those things for whose production she was pre-eminently fitted by reason of the possession of boundless and cheap raw materials. This natural but slow process was, however, sharply interrupted by the Civil War, when, by the imposition of prohibitive tariff duties, the growth of domestic industries was greatly hastened. The industrial revolution thus inaugurated has been compared with that in England one hundred years before. It certainly marks a turning-point in the economic development of the country as distinct as that in its political life, and more significant in its effects than the earlier industrial revolution introduced in this country fifty years before by the restrictive period.

294. Factors in the industrial development. — The cause which had the most immediate effect on the rapid growth of manufacturing industries was the imposition of heavy war tariffs on all imported goods, by which the home market was practically reserved for domestic manufacturers. The war demands for food, clothing, arms, and similar commodities, the rise of prices occasioned by the over-issue of legal tender paper money, and other causes gave additional stimulus. More important, however, because more fundamental, were

the changes going on in the other parts of the industrial organism, which have been traced in the foregoing chapters. The opening up of the West and the immense expansion of our grain production, together with the development of improved means of transportation between the manufacturing and agricultural sections of the country, increased the purchasing power of the West and assured the eastern manufacturers a market for their goods. After the cessation of hostilities the South, too, made large demands upon the North for capital in various forms, as well as manufactured articles of every description, while the exploitation of the mines, forests, and other natural resources of the country furnished the manufacturers with cheap raw materials. The freedom of interstate commerce and absence of restrictive traditions should also be mentioned as factors contributing in no small degree to the industrial development of the country. "The mainland of the United States is the largest area in the civilized world which is thus unrestricted by customs (duties), excises, or national prejudice, and its population possesses, because of its great collective wealth, a larger consuming capacity than that of any other nation."

295. Growth of manufactures. — The growth of manufactures may best be shown by statistics, though the remarkable diversity of industries and increase in the volume of products is not revealed by such a method. The following table shows the progress in manufactures from 1850 to 1880:

GROWTH OF MANUFACTURES AND OF HOME CONSUMPTION, 1850–1880

Year	Value of products of national manufactures	Amount of capital invested	Number hands employed	Importation of foreign manufactures	Consumption of domestic manufactures, per cent.	Consumption of foreign manufactures, per cent.
1850	$1,019,109,616	$533,245,351	958,079	$130,838,280	88.39	11.61
1860	1,885,861,676	1,009,855,715	1,311,246	261,264,310	87.57	12.43
1870	4,232,325,442	2,118,208,769	2,053,996	308,363,496	93.14	6.86
1880	5,369,579,191	2,790,272,606	2,732,595	423,699,010	92.58	7.42

In the twenty-year period between 1860 and 1880 there was thus a gain of 184.7 per cent. in the value of the manufactured product and of 176.3 per cent. in the capital invested as against an increase of 59 per cent. in the population. An official report in 1869, quoted by Dewey, declared that "within five years more cotton spindles had been put in operation, more iron furnaces erected, more iron smelted, more bars rolled, more steel made, more coal and copper mined, more lumber sawn and hewn, more houses and shops constructed, more manufactories of different kinds started, and more petroleum collected, refined, and exported, than during any equal period in the history of the country." And with the exception of the two or three years following the panic of 1873, a similar expansion characterized the next decade. The growth in the number of cities of 8000 inhabitants and over from 141 in 1860 to 286 in 1880 simply illustrates somewhat differently the increasing application of the people to manufacturing and industrial pursuits.

296. Growing self-sufficiency of the United States. — Still more significant, however, than the mere physical bigness of our industries was the increasing adequacy of our production to the home demand. In the case of food products and raw materials the country had long supplied its own needs: wheat, corn, cotton, tobacco, and other agricultural products had since colonial days been raised in sufficient quantities to yield an exportable surplus; while the resources of coal, iron, copper (more recently), lumber, and other raw materials of manufacturing were just beginning to be exploited on a large scale. In the case of manufactured goods, on the other hand, we had always imported large quantities from England and Europe. Largely as a result of the restrictive war tariff the proportion of domestic manufactures consumed in the United States greatly increased — from 88 per cent. in 1860 to 93 per cent. in 1880. The articles imported consisted principally of the finer grades of textiles, and of luxuries. And yet even of these the domestic manufacturers were every year

more nearly meeting the domestic demand. Thus — to select only one instance — the proportion of silk goods made in the United States of the whole quantity consumed grew from 13 per cent. in 1860 to 38 per cent. in 1880.

297. The textile industries. — The progress of manufacturing can best be traced by noting the phenomenal development in a few of the leading industries. In the magnitude of the interests involved the first place is taken by the textile industries, as will be seen in the following table:

Year	Number of establishments	Capital	Number of Employees	Value of Products
1860	3,027	$150,080,852	194,082	$214,740,614
1870	4,790	297,694,243	274,943	520,386,764
1880	4,018	412,721,496	384,251	532,673,488

Of the different branches of the textile industry, the manufacture of cotton ranks first in importance. Almost destroyed during the Civil War by the cutting off of the supplies of raw cotton, whereby two thirds of the spindles in the country were rendered idle, it quickly recovered after that event. In the twenty-year period, 1860–80, the number of spindles in operation and the amount of raw cotton consumed practically doubled. This same period witnessed a still more extraordinary growth in the woolen manufactures, the amount of capital invested and the value of the products more than trebling in that interval; this was largely due to the demand for woolens for army purposes and to the cotton famine.

The most phenomenal development, however, was seen in silk manufactures, the value of whose products increased from six to forty-one million dollars. While the silk manufacture is the oldest branch of the textile industries in the United States, it has always suffered from a lack of raw materials. The invention of the sewing-machine led to a demand for

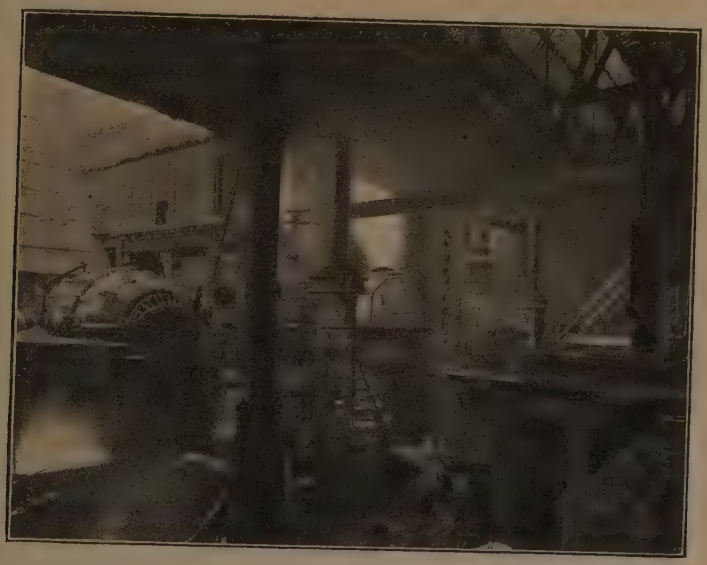
sewing-silk, and in 1852 the production of "machine-twist" was begun, which practically marked the beginning of the silk manufactures in this country. Manufactures of spun silk, ribbons, dress goods, etc., were commenced during or after the Civil War. Other important textile industries were carpets, hosiery, and knit goods, and dyeing and finishing.

298. Improvements in the textile industries. — Great improvements were made in all departments of the cotton industry after the Civil War; steam ginneries began to be substituted for the older ones run by horse or mule power; the cottonseed began to be used for oil and fertilizers. The main improvements, however, took place in the process of manufacture itself.[1] Textile manufacturers in the United States have always enjoyed a certain advantage over English or European competitors in the size of the domestic market for which they produce. They have produced staple goods in large quantities for a uniform class of customers, and have thus been able to introduce the most improved and expensive machinery. On the other hand, owing to the high price of labor here, the finer grades and those subject to a variable demand have been imported from abroad. The increasing use of steam was emancipating the cotton factories more and more from the dependence on the water-power of certain localities, and was preparing the way for that migration of the cotton

[1] The great advance made in cotton manufacturing is well illustrated in the following quotation from the Census of 1880 (Vol. IV, p. 941): "At the Atlanta Cotton Exposition of 1881 were to be found five women from the mountain section of Georgia, spinning and weaving coarse cotton fabrics by the use of the hand-card, the spinning-wheel, and the hand-loom. They were representatives of a large section of the United States and of a very considerable population, variously estimated at from 200,000 to 300,000 in number, who have not been reached until lately by the railroad, or been able to avail themselves of modern arts to any great extent. At the measure of their work, two carders, two spinners, and one weaver could produce eight yards of coarse cotton cloth in a day of ten hours. The same number of persons employed in the modern cotton factories can, by the use of machinery, with far less arduous labors, produce 800 yards of the same cloth, or one hundred-fold as much."

factories to the South, which was to become more apparent in the next generation.

299. Iron and steel industry. — In no industry in the United States was the rate of growth after the war so great as in the



BESSEMER CONVERTER AT EDGAR THOMSON WORKS, PITTSBURG
Before iron can be used in the manufacture of steel, various impurities must be got rid of, such as phosphorus, carbon, etc. This is done in the Bessemer converter where the impurities are blown off by forcing a blast of cold air through the molten iron, as seen in the converter near the center of the picture. The color of the flame indicates to the operative the condition of the metal, and at the proper moment he must stop the blast. The converter is then tipped over and metal is then poured out, as seen at the left side of the illustration, into ingot molds, of which a row (used for another converter not shown) is seen under the bench at the extreme right. When hard the steel is forced out of the ingot molds, which are open at both ends, by means of a hydraulic ram, and the billets are then ready for use in the manufacture of steel products.

iron and steel industry. As early as 1866 the English economist Jevons wrote: "It is impossible that there should be two opinions as to the future seat of the iron trade. The abundance

and purity of both fuel and ore in the United States, with the commercial enterprise of the American manufacturers, put the question beyond a doubt." Nor did this prophecy remain long unfulfilled. The amount of pig iron produced increased from 919,770 tons in 1860 to 4,295,414 tons in 1880, while the relative increase in the production of steel was still greater — from 9,044 tons in 1863 to 1,397,015 in 1880. The principal causes of this remarkable growth, in addition to the opening up of abundant and cheap deposits of both coal and iron, were the improvements in methods of production, such as the hot-air blast, the regenerative gas furnace, the substitution of coke for anthracite coal, the introduction of the Bessemer process, and more scientific methods at every stage of production. On the other hand, the expanding demand for rails, machinery, and other steel and iron products gave a strong impetus to their manufacture.

300. Production of iron and steel. — While the period before the Civil War had been marked by the change from charcoal to anthracite in the production of pig iron, the twenty years following saw bituminous coal (chiefly in the form of coke) pass anthracite as a fuel. This fact enabled the industry to spread into many new districts; in 1880 iron was made in thirty States. Pennsylvania, which for more than a hundred years had been the leading iron-producing State in the Union, still yielded about fifty per cent. of the total. The concentration of the industry was not so great, however, as was that of the textile industry.

The year 1867 marks the beginning in the manufacture of Bessemer steel in this country, when 3000 tons were produced; this had grown to 1,203,173 tons in 1880. This event marked the inauguration of the era of steel, which now began rapidly to displace iron in all uses where strength and durability were needed. The growth of the industry as a whole may be seen in the following table:

MANUFACTURE OF IRON AND STEEL, 1860–1880

Year	Number of Establishments	Amount of Capital	Value of Product	Hands Employed
1860[1] ..	402	$23,343,073	$36,537,259	22,014
1870...	808	121,772,074	207,208,696	77,555
1880...	1005	230,971,884	296,557,685	140,978

301. Clothing and footwear. — A brief description of two of the industries which were revolutionized during this period may be added at this point. Before 1850 the manufacture of men's (and children's) clothing was mainly a household industry, but with the introduction of the sewing-machine into general use it was transferred to shops and factories. An especial impetus was given to the industry during the war by the great demand for army clothing. With the large influx of Russian Jews into this country in 1876 and subsequent years, the sweating system, unhappily still characteristic of the in-

THE MCKAY SEWING MACHINE

The application of the sewing machine to the manufacture of shoes was extremely important, and was first made a practical success in the McKay machine. The work of sewing the upper and the sole together had always been a difficult and laborious task, but the work could now be performed with the expenditure of a fraction of the time and cost necessary under the hand labor method. On this machine a single operator can sew nine hundred pairs of shoes in a day of ten hours.

[1] Iron — forged, rolled, and wrought.

dustry to-day, was introduced. Instead of a skilled tailor making a complete garment, a team of three to five persons now divided the work and produced the finished article under the task system, one man cutting out the garment, a second basting it, a third and a fourth buttonholing and finishing it, while a fifth pressed it, each person being paid by the piece on a very low scale. While the price has been greatly reduced and production stimulated, it has been at a frightful social cost. The value of the product grew from $80,830,555 in 1860 to $209,548,460 in 1880. The manufacture of women's ready-made clothing has never been so important, and prior to 1880 was confined almost exclusively to cloaks; the total value of factory products in that year was only $32,004,794.

LASTING MACHINE

The process of lasting — that is of fitting the upper part of a shoe to the sole over a last or model of the human foot — is the most important and difficult operation in the making of a shoe. A delicate and curious pulling of the leather is required to give a smooth finish, and it was long thought that this work could be done only by hand. In this machine pincers grasp and manipulate the upper leather with almost human skill, and shape it on the last; it is then fastened to the insole by tacks which are fed automatically through a raceway. Without such a machine it would be practically impossible to meet the commercial demand for shoes to-day. but the work of lasting on the most expensive shoes is still done by hand.

More typical of the machine methods of American manufacture is the boot and shoe industry. "Here machinery seems to have reached its culmination. The human hand does little but guide the material from machine to machine, and the

hammering, the stamping, and the sewing are all done by the tireless energy of steam." Previous to the year 1845, when the leather-rolling machine was introduced, this industry had been strictly a hand process; this invention was followed in the next ten years by the buffing and the splitting machines, and by peg-making and power-pegging machines. The greatest revolution in the industry was, however, effected by the invention of the McKay sewing-machine. From that time on improvements in all the processes of manufacture were made rapidly, even the apparently confirmed hand process of lasting being given over to machinery in the early seventies. By 1880 "the subdivision of labor had about reached its limit and the present system had been perfected." As a result of these various improvements the labor cost of 100 pairs of men's boots was reduced from $408.50 by hand labor in 1859 to $35.40 by machine in 1895. The yearly product grew from $80,750,000 in 1860 to $196,920,481 in 1880.

302. Other manufactures. — The diversity of manufacturing industries in the United States in 1880 is shown by the fact that the census of that year distributed them under 332 titles; of these the twelve following showed a total production of over $100,000,000:

Flouring and grist-mill products	$505,185,712
Slaughtering and meat-packing	303,562,413
Iron and steel	296,557,685
Woolen manufactures (all)	267,252,913
Lumber, sawed	233,268,729
Foundry and machine-shop products	214,378,468
Cotton goods	210,950,383
Clothing, men's	209,548,460
Boots and shoes, including custom work and repairing	196,920,481
Sugar and molasses, refined	155,484,915
Leather, tanned	113,348,336
Liquors, malt	101,058,385

The most characteristic feature of American manufactures has always been the invention and application of labor-saving machinery, and the industries which showed especially rapid

growth during this period were characterized by the introduction of machine methods. Writing in 1865, Peto, a keen English observer, made the following comment on this tendency: "Mechanical contrivances of every sort are produced to supply the want of human hands. Thus we find America producing a machine even to peel apples; another to beat eggs; a third to clean knives; a fourth to wring clothes; — in fact, human hands have scarcely been engaged in any employment in which some cheap and efficient labor-saving machine does not now to some extent replace them." The extent to which machinery was supplementing hand labor is seen in the fact that while the value of the manufactured products trebled in the twenty-year period, 1860–80, the number of persons employed only doubled; at the same time the annual product of each operative increased from $1438 to $2015.

303. The system of interchangeable mechanism. — From the earliest times the American producer has endeavored to supplement the relative scarcity of labor, as compared with the wealth of resources to be exploited, by the introduction of labor-saving machinery. In no branch of mechanical improvements has the genius of the American inventor shown itself more strikingly than in the development of the so-called system of interchangeable parts. The essential principle consists in making each part of an intricate machine precisely like the same part in every other machine. Under such a system it is possible to make even the most intricate and delicate part of a machine in large quantities on the wholesale plan and thus greatly to reduce their cost of production. The different parts are then "assembled" at a single operation. On the side of the consumer the great advantage, apart from the lessened cost, lies in the fact that the wide use of complicated and expensive machines is made possible, for in case of injury a broken piece can be replaced with perfect accuracy, by simply ordering a duplicate by number. This system seems to have been a distinctively American invention, having been first introduced by Eli Whitney, in the manufacture of firearms.

Its greatest application probably took place in the sewing-machine, but up to 1880 it had revolutionized the manufacture also of ammunition, locomotives and railroad machinery, watches, clocks, and agricultural machinery. Not until after the exhibition of some American machinery at the World's Fair in London in 1851 does the system seem to have been generally introduced into Europe.

Equally important is the standardization of machinery and parts. In the manufacture of screws or iron beams, for example, certain dimensions and sizes, which are best adapted for general use, are selected as standard sizes, and these are then turned out in large quantities by automatic machinery. Odd sizes and special designs can generally be secured only by special order. In this manner cheapness and rapidity in filling an order are secured, while a broken part can be secured from any firm making or handling the standard sizes. Such a system was not possible until measuring instruments of exceeding accuracy had been invented, but it is now spreading rapidly. Its international application is rendered difficult by the existence of two standards of measurement — the metric system on the Continent and of feet and inches in England and America. For the successful invasion of the foreign markets by our manufacturers it would be desirable to have the metric system adopted in the United States.

304. Power in manufacturing. — This period was also characterized by a great increase in the use of artificial power, and particularly of steam, in manufacturing. In this connection, David A. Wells wrote: "When the historian of the future writes the history of the nineteenth century he will doubtless assign to the period embraced by the life of the generation terminating in 1885 a place of importance second to but very few and perhaps to none . . .; inasmuch as all economists are agreed that within the period named man in general has attained to such a greater (*sic*) control over the forces of nature, . . . that he has been able to do far more work in a given time, produce far more product" than was possible at the beginning

of the period. The increase in labor force due to the increased use of steam was estimated at three hundred-fold, and this, notwithstanding the relative wastefulness of the existing steam-engine. In the United States, the power used in manufacture in 1880 was equal to 3,410,837 horse power, of which about two thirds was steam-power. This was an increase of about ten per cent. per hand employed over 1870, showing a transfer to that extent of manufactures from manual to mechanical power.

305. Growth of patents. — One of the unexpected results

UNITED STATES PATENT OFFICE, WASHINGTON
In this building may be seen thousands of models and drawings, representing patented inventions. In 1906 almost 32,000 patents were granted.

of the war was the impulse given to the invention and use of machines designed to economize human labor; from 4363 patents in 1860 — the high-water mark up to that time — the number rapidly grew to 8874 in 1866. In 1869 the number of patents issued reached 12,957, which was not again exceeded until 1881. The average number of patents granted

during the two decades of this period was almost four times as many as those issued during the decade 1850–60, developing more rapidly than either the product, the capital, or the number of wage-earners in manufactures. Many extensive industries were built up on the basis of patents, or old ones were completely revolutionized; such were the iron and steel, textile, and railway industries, the manufacture of sewing-machines, rubber goods, wood pulp, photography, and stereotyping and electrotyping. While in some of these industries American inventors simply improved upon processes already in use in other countries, most of them were original and new. The American inventor has not merely improved the methods of making old things; he has in many instances produced absolutely new commodities and has devised original ways of manufacturing them.

306. The war tariff. — Under the stress of the Civil War and the necessity of securing larger revenue, the financial methods of the United States were revolutionized. In addition to the issue of legal-tender paper money and an immense increase in our public debt, internal revenue taxes and high import duties were made use of with a vigor rarely, if ever, equaled. From 1861, when the first additional customs duties were imposed, until 1865, "no session, indeed hardly a month of any session, passed in which some increase of duties on imports was not made." Heavy duties were necessary in order to offset the complicated and burdensome system of internal revenue duties, which taxed domestic industries from 8 to 20 per cent. The need of revenue was the leading consideration in the passage of the later acts; but in all of them the desire for higher protection was present. The most important tariff acts of the war period were those of 1862 and 1864, which granted a degree of protection hitherto unequaled in the history of the country; under the act of 1864 the average rate on imports was raised to 47 per cent., while the average rate under the tariff of 1857 had been only 19 per cent. Opposition to high import duties almost disappeared during the war,

and these rates were readily acquiesced in. Indeed, Congress spent only five days in all debating the measure, but passed it practically as presented by the Committee on Ways and Means.

307. Attempts to reduce the tariff. — After the war the decreased demand for revenue led to a gradual reduction of internal revenue taxes; by 1872 most of these had been abolished, leaving only those on spirits and tobacco as important features of the excise system. At the same time the national debt was being paid off with a rapidity unexampled in history. The tariff, however, remained practically unchanged; unlike the internal taxes levied in 1812, which were repealed immediately after the war, the tariff of 1864 was retained as a permanent element in our fiscal system. Duties were reduced in 1870 on a few purely revenue articles, such as tea, coffee, wine, sugar, molasses, and spices, but the system of protection was barely disturbed. By 1872 a surplus revenue of $100,000,000 a year was pouring into the treasury, and further reductions became imperative. A "horizontal" ten per cent. reduction was accordingly made in that year in the tariff, but after the panic of 1873, and the resulting deficit in Federal revenues, it was easily repealed in 1875, and the previous rates restored. No further changes were made in the tariff until 1883. For twenty years, therefore, the war tariff remained practically unchanged. Manufacturers, who had prospered under the high protection thus granted, proved strong enough to resist any efforts at tariff reform, and the system of protection which thus grew up, largely by reason of the necessities of the Civil War, became a permanent part of our commercial policy.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XXV

1. China is an example of a nation that has made itself almost self sufficing. Has this been advantageous or the reverse to China?

2. Compare the growth of textile manufactures in the United States and England, and give reasons. [Ure, The Cotton Manufacture of Great Britain, II, 310; T. M. Young, The American Cotton Industry; Ashley, British Industries, 68–92.]

3. Why did France lead in 1900 in the production and manufacture of silk? [Trotter, 265; Adams, Com. Geog., 101, 238.]

4. Describe fully the Bessemer process of making steel. Was Bessemer the original inventor? [Bishop, II, 487; Swank, chaps. 45, 46.]

5. Is iron ore transported to the fuel or the reverse. Why? [Rocheleau, 121.]

6. Name the three largest centers of the iron and steel manufacture in the United States, and tell why each is important. [Trotter, 146; Adams, Com. Geog., 123–125.]

7. What advantages has steel over iron for building purposes? [Swank, 525–540; Adams, Com. Geog., 126.]

8. Describe the sweating system. Is this necessary in the clothing trade? [Wright, Practical Sociology, 246–249; Bliss, Encycl. of Soc. Ref., arts. Sweating System and Tailoring Trade.]

9. Trace the development of one of the important industries mentioned in sect. 302. [Depew, One Hundred Years of American Commerce.]

10. What effect has the change from water power to steam had upon the localization of industries? [Trotter, 127–130.]

11. Describe some industry which owes its success to patents. [Bryn, Progress of Invention.]

12. Why was not the tariff reduced to the level existing before the war? Were there any serious attempts to do so? [Taussig, Tariff Hist., 171–193; Dewey, 396–398.]

13. Is it a desirable thing for the United States to attempt to produce everything that is needed at home? [Bullock, Intro., 347, 362; Seager, 370, 375; Walker, Pol. Econ., 509–511; Gide, 323.]

14. Is there a conflict of interests between the wool-growers, the manufacturers, and the importers of woolen goods? Are their interests all met by the tariff? [Taussig, Tar. Hist., 239, 258, 291, 329; Stanwood, II, 380.]

15. Is it a waste of energy to send raw cotton to England for manufacture and then to import the manufactured goods? [Cairnes, Leading Principles; Bastable, Theory of International Trade.]

16. Is there an economic loss involved if New England purchases its fruit from California, and sends thither manufactured goods?

SELECTED REFERENCES. CHAPTER XXV

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*Carnegie: Triumphant Democracy, chap. 10.
**—— Tenth Census, vol. 2, on Manufactures.
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**Taussig: Industry and Finance, in Shaler's The United States, II, 527–534.

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CHAPTER XXVI

MANUFACTURING ON A LARGE SCALE (1880–1906)

308. The growth of manufactures. — The most striking feature in the recent industrial development of the United States has been the enormous growth of manufactures, both absolutely and relatively to other branches of industry. Between 1850 and 1900 the population of the country has more than trebled (from 23,191,876 to 76,149,386), and the products of agriculture have trebled (from $1,600,000,000 to $4,739,000,000). But in the same period manufactures show an increase of almost nineteen-fold in the amount of capital invested (from $533,000,000 to $9,835,000,000), and of twelvefold in the value of products (from $1,019,000,000 to $13,014,000,000). Most of this phenomenal expansion has occurred in the last two decades, which have witnessed the discovery and utilization of the natural resources of the country on an unprecedented scale, the extension of the domestic market by the settlement of the West, the improvement and cheapening of transportation facilities, and the completer application of labor-saving devices. The end of the nineteenth century saw the rise, too, of new lines of economic development, which mark the beginning of a new industrial era in the United States: one of these is the successful invasion of foreign markets by American manufacturers in competition with other exporting nations; another is the growth of trusts or industrial combinations, which have reorganized production and led to new methods in both industry and finance. Hardly less momentous is the growth of great labor organizations, capable of coping with the giant aggregations of capital, and the spread in them of the "new unionism."

The following table presents a brief summary of the development of manufactures since 1880:

SUMMARY OF MANUFACTURES, 1880–1900

	1900	1890	1880	Percentage of increase	
				1890 to 1900	1880 to 1890
Number of establishments	512,339	355,415	253,852	44.2	40.0
Capital	$9,835,086,909	$6,525,156,486	$2,790,272,606	50.7	133.9
Number salaried officials	397,174	461,009	(1)	13.8 [2]	
Salaries	$404,230,274	$391,988,208	(1)	3.1	
Average number wage-earners	5,316,802	4,251,613	2,732,595	25.1	55.6
Total wages	$2,328,691,254	$1,891,228,321	$947,953,795	23.1	99.5
Miscellaneous expenses	$1,028,035,611	$631,225,035	(1)	62.9	
Cost of materials used	$7,348,144,755	$5,162,044,076	$3,396,823,549	42.3	52.0
Value of products, including custom work and repairing	$13,014,287,498	$9,372,437,283	$5,369,579,191	38.9	74.5

309. The United States as a manufacturing nation. — For the first one hundred years of its national existence the United States was primarily an agricultural nation. Its exports were derived almost entirely from agriculture and the extractive industries, and the greater part of the population was engaged in agricultural pursuits. But ever since the Civil War the

[1] Not reported separately.

[2] Decrease.

manufacturing industries of the country had been expanding rapidly, and in 1890 the census showed for the first time a greater value in the products of manufactures than of agriculture; by 1900 the value of manufactures was double that of the farm products. This rapid industrial progress enabled the United States to outstrip all her rivals in the volume of her manufactures; from fourth place in 1860 she attained first rank in 1894, and for several years has been the leading manufacturing nation in the world. The following table from Mulhall's "Industries and Wealth of Nations" shows the relative rank of the United States in comparison with the foremost industrial nations of Europe:

MANUFACTURES IN THE UNITED STATES AND FOREIGN COUNTRIES

	Millions of Dollars			
	1820	1840	1860	1894
United Kingdom	1411	1883	2808	4263
France	1168	1606	2092	2900
Germany	900	1484	1995	3357
Austria	511	852	1129	1596
Other States	1654	2516	3455	5236
Europe	5644	8341	11,479	17,352
United States	268	467	1907	9498
Total	5912	8808	13,386	26,850

The industrial supremacy of the United States is still more evident if we compare particular industries. In 1890 she overtook Great Britain in the production of both pig iron and steel, in which England had hitherto been easily first; in 1901 this country produced twice as much pig iron and nearly three times as much steel as her insular rival, turning out more than

one third of the world's supply of each. Not merely in the production of raw cotton, of which the United States raises nearly nine tenths of the world supply, but in the manufacture of cotton goods, hitherto England's chief industry, this country has made great gains; in 1899 the domestic manufacturers used about 360,000,000 pounds of raw cotton more than the English mills, although the value of their product was greater, owing to the fact that they turned out finer grades of goods. The basic industry for all others, and the one which will probably determine the industrial supremacy of the nations, is the production of coal. In this the United States was surpassed by Great Britain until 1899, but since that time we have led the world, producing about one third of the total supply.

310. Advantages of the United States. — The rapid rise of the United States to the foremost rank among manufacturing nations is due to a number of different causes, some of which may be briefly stated at this point. The vastness of the territory and the fortunate possession by the United States of unparalleled agricultural and mineral resources have already been sufficiently described; their abundance and cheapness made it certain that when the people of this country devoted themselves to their exploitation and manufacture they must speedily surpass other less favored, though industrially more advanced, nations. Not less important is the character of the people — their ingenuity, inventiveness, and energy; — qualities which have been developed and trained by an admirable system of compulsory free education. The development of American manufactures was also greatly facilitated by the magnificent system of inland water-ways and accessible coast line, which have been supplemented and extended by the rapid construction of railways, thus permitting a cheap and easy exchange of products. Closely connected with this is another factor which has favored the growth of manufactures: the absence of all artificial restrictions upon trade within the United States has permitted an untrammeled development of our national industries and has assured the domestic manu-

facturer a market larger in consuming capacity than that in any other country in the world. Finally, the influence of tariff legislation in fostering domestic industries by shutting out foreign competition must be taken into account. Whatever views are held on this question it must be admitted that the restrictive legislation dating from the Civil War has hastened the development of the protected branches of manufacture.

311. Concentration in large establishments. — Not merely have the manufacturing industries of the United States shown a rapid growth, but at the same time there has taken place a startling concentration of manufactures, especially along certain lines, into a relatively smaller number of establishments. This tendency has been in evidence more or less since 1850, but has been greatly accelerated during the last two decades. It is most marked in the case of the iron and steel industries, cotton manufactures, and leather goods, but is noticeable also in the manufacture of agricultural implements, boots and shoes, carpets, glass, malt liquors, paper, ship-building, slaughtering and meat packing, tobacco, and the textiles. A few industries, which are essentially local in their nature, show no such tendency, such as flour and grist mills, cheese and butter factories, etc., but with few exceptions it is the prevailing characteristic of manufactures in the United States. The 1905 census of manufactures shows the movement towards concentration to be still going on almost unchecked. The number of industrial units has increased only 4.2 per cent. since 1900, but capital, wages, and value of product show increases of from 30 to 40 per cent. In the monopolized industries there is a positive decrease in the number of establishments. The size of the establishment is perhaps best shown by the number of employees; in 1900 there were 1506 plants with over 500 employees each, of which 443 employed over 1000 each; of these 120 were in the textiles and 103 in the iron and steel industry. The extent to which this large-scale production has proceeded may be presented in statistical form for two or three typical industries, as follows:

ALL MANUFACTURES IN THE UNITED STATES

	1850	1860	1870	1880	1890	1900
Aver. product of each establishment	$8,280	$13,420	$13,420	$21,100	$28,070	$25,418
Aver. capital of each establishment	$4,330	$7,190	$6,720	$10,960	$19,020	$19,269
Aver. number of employees of each establishment	7.7	9.3	8.1	10.6	13.8	10.4

COTTON GOODS

	1850	1860	1870	1880	1890	1900
Number of establishments	1094	1091	956	1005	905	1055
Average product of each establishment	$55,500	$106,000	$185,600	$209,900	$296,000	$321,500
Average capital of each establishment	$68,000	$90,000	$147,000	$218,000	$391,000	$443,000
Average number of employees of each establishment	84	112	142	185	242	287

IRON AND STEEL

	1850	1860	1870	1880	1890	1900
Number of establishments	468	542	726	699	699	668
Average product of each establishment	$43,600	$97,000	$275,000	$419,000	$683,000	$1,203,500
Average capital of each establishment	$46,700	$82,000	$161,000	$295,000	$591,000	$858,000
Average number of employees of each establishment	53	65	103	197	250	333

312. Advantages of large scale production. — This concentration of manufactures into large establishments has been caused by certain distinct advantages enjoyed by large-scale production. Foremost among these are economies of various kinds. The operation of a business on a large scale permits the use of expensive and complicated machinery, its constant employment, the minute division of labor, the employment of

more skilled management and superintendence, the utilization of by-products, and the economical purchase of raw-material and marketing of the finished product. The modern factory requires a large investment in expensive machinery; from the statistics just presented it is seen that while the average number of employees per establishment increased about thirty per cent. between 1850 and 1900, the average investment of capital increased over three hundred per cent. This indicates that the tendency in manufacturing is toward machine production. In a large establishment every machine is utilized to the utmost, there is no needless duplication of machinery such as would occur for several small plants, while expensive machines to carry on relatively small processes can be profitably installed. So, too, in the labor employed a high degree of specialization is possible, and the peculiar aptitude of each man is given scope to develop itself. In experimenting with and inventing new machinery and methods the large establishment also has an advantage.

One of the most striking economies is effected in the utilization of waste products, which is profitable only when the industry is managed on a large scale. This has been carried furthest in the oil-refining and meat-slaughtering industries, but is also practised extensively in the iron and steel, lumber, paper, textile, cottonseed oil, leather, brewing, and other industries. In the large meat-packing houses, for instance, much that formerly went to waste, as hoofs, horns, bones, hair, bristles, fat, intestines, and blood, is now converted into soap, glue, fertilizers, albumen, knife handles, combs, buttons, oils, oleomargarine, glycerine, etc.; but many of these by-products remain unutilized even at the present day in houses of small capacity.

313. The localization of industries. — The manufactures of the United States are confined chiefly to that part of the country north of the Potomac and Ohio and east of the Mississippi rivers, and are especially dense in southern New England, southern New York, New Jersey, and eastern Pennsylvania.

This predominance in the northeastern section of the country may be accounted for on historic and economic grounds which have already been described; but there have asserted themselves at the same time other industrial tendencies which are less obvious but no less interesting. These are the localization of industries in particular States and cities, the specialization of certain localities, and the shifting of industrial centers. The following industries are highly localized, more than one half of the total value of the products in the United States being manufactured in the specified States: collars and cuffs and leather gloves and mittens in New York; plated and britannia ware, clocks, and brass ware in Connecticut; oyster canning and preserving in Maryland; coke and iron and steel in Pennsylvania; safes and vaults in Ohio; whips in Massachusetts; and vinous liquors in California. Within these States the localization in cities was carried still further: thus 85 per cent. of the collars and cuffs were manufactured in Troy, N. Y.; 64 per cent. of the oyster canning was carried on in Baltimore; 54 per cent. of the gloves were made in the adjoining cities of Gloversville and Johnstown, N. Y.; 48 per cent. of the coke in Connellsville, Pa.; 48 per cent. of the brassware in Waterbury, Conn.; and 46 per cent. of the carpets in Philadelphia. Not only have these and other industries become localized in a few places, but certain cities have specialized in particular industries, devoting themselves almost exclusively to the production of one thing. More than 75 per cent. of the entire number of wage-earners in the following cities are engaged in the specified industry: South Omaha, Neb., slaughtering and meat-packing; McKeesport, Pa., iron and steel; East Liverpool, Ohio, pottery; Fall River, Mass., cotton goods; Brockton, Mass., boots and shoes; Gloversville, N. Y., gloves.

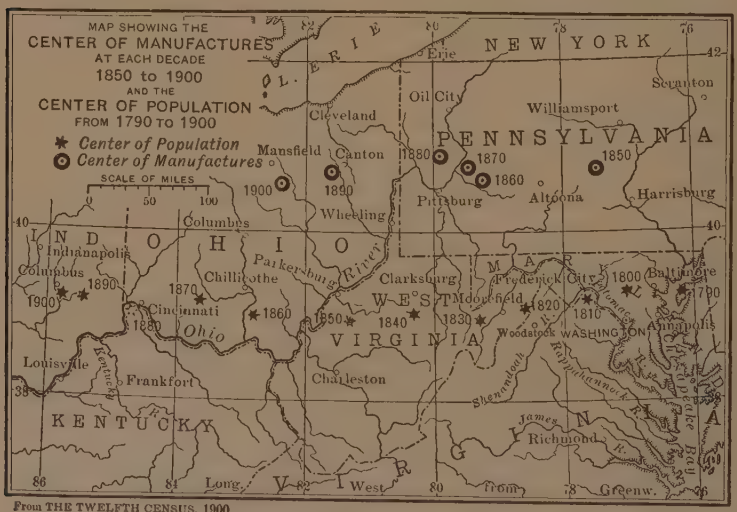
314. Causes of localization. — The tendency toward localization has been apparent ever since the beginning of colonial manufactures, and not merely in this country but in other places as well. While sometimes it seems as though the choice of a location for a young industry were purely fortuitous, it

will generally be found to have been determined by economic causes. The following seven advantages, as given in the twelfth census of the United States, may fairly be assigned as the general causes: (1) nearness to materials, as in the case of the paper, tanning, slaughtering, pottery, oyster canning, and tobacco industries, each of which is situated in the vicinity of the chief source of supply of the raw materials. (2) Nearness to markets; this is best illustrated by the growth of manufactures in the neighborhood of centers of population, especially of commodities which will not bear distant transportation. (3) Water-power; while of great influence in the early days of manufacture, this factor has been steadily diminishing in importance, though the growing use of electricity as a motive force may again bring it into prominence. The presence of coal, on the other hand, is a decisive factor in many industries. (4) A favorable climate; thus Fall River and New Bedford offer exceptional advantages to the manufacture of cotton by reason of their even, moist climate. (5) A supply of labor; owing to this fact it is difficult to establish manufacturing industries in the West and to a less degree in the South, because of the inadequate or inefficient labor supply. (6) Capital available for investment in manufactures; while outside capital can usually be obtained, a supply of local capital is often essential; the growth of the cotton industry in New Bedford about 1850 has been ascribed to the supply of local capital set free there by the decline of the whaling industry. (7) The momentum of an early start; the leadership of Lynn, Mass., in the boot and shoe industry, which dates from 1750, is probably due chiefly to this cause. Once begun, the localization of industries tends to become constantly greater and is overcome only by potent economic forces.

315. The migration of industries. — As the country has grown, new industries have been established in the newer sections; the center of manufactures, as well as the center of population, has moved steadily westward. The filling of the middle West and the growth there of large cities have provided

the necessary labor supply, markets, and capital, while new sources of supply of raw materials have hastened the establishment of industries rivaling those of the older sections of the country.

The very forces which make for localization tend also to shift the industry when these forces show themselves more strongly in other localities. Thus the manufacture of agricultural implements has advanced from New York to Ohio and to Illinois, following the retreating hard-wood forests and agricultural interests. In the cotton industry a striking



From THE TWELFTH CENSUS, 1900.

change has taken place in the rapid advance of the southern States, especially North and South Carolina and Georgia; the value of the cotton products of these three States constituted 6.2 per cent. of the total in 1880, and 22.6 per cent. in 1900. During the same period the capital invested in southern cotton mills increased from $21,900,000 to $125,000,000, the number of spindles from 610,000 to 4,300,000, and the consumption of cotton from 205,000 to 1,500,000 bales. This growth has been largely at the expense of the New England mills, and still more

of those in Europe, and is due to the proximity of the raw material, the excellent water-power, and the supply of cheap labor. The migration of the leather industry from Massachusetts and New York to Pennsylvania and the Central and Western States, which began about 1880, was due to the exhaustion of the tan-bark supply. Slaughtering and meat-packing, which had its beginning in Cincinnati about 1818, has moved gradually westward, following the opening up of new grazing sections for cattle and swine.

316. The industrial development of the South. — A most significant feature of the material development of the United States during the past twenty years has been the marvelous industrial revolution in the South. As a result of this we shall probably soon see a considerable shifting of the center of manufactures to the Southwest. Although cotton growing was for a generation after 1860 practically the only interest of the South, and remains still the chief one, manufactures began about 1880 to reach that section. The value of the manufactured products increased from $338,791,898 in 1880 to $1,184,398,684 in 1900, and the capital invested in manufactures from $192,949,654 to $953,850,192 during the same period. The greatest development naturally took place in cotton manufactures, nearly half of the cotton factories of the United States being situated there in 1900, and consuming 40 per cent. of the raw cotton, practically all of which dates from 1880. The iron industry promises to make even greater strides: in North Carolina, Tennessee, and especially in Alabama, abundant supplies of coal, iron, and limestone lie so near one another that pig iron can be made cheaper there than anywhere else in America, and probably in the world. The production of southern pig iron increased from 397,000 tons in 1880 to 2,500,000 tons in 1900; and great iron foundries, steel plants, rolling, and rail mills sprang up at Birmingham and elsewhere with marvelous rapidity. In 1901 immense deposits of oil were discovered in Texas, furnishing a cheap fuel and illuminant. The splendid forests of hard pine and

other timber throughout the South were reached, cut, and sold, and lumber mills were started at numerous points. Manufactures in the southern States have had to depend on the labor of the poor whites; the negroes have not shown the persistence necessary for factory labor, and the foreigners who have migrated to that section have preferred to take over the farms deserted by the whites. Child labor is being largely employed, and the industrial transition is bringing up economic problems which were burning questions in New England thirty to forty years ago, and in old England thirty to forty years earlier still.

317. Motive power in manufactures. — The modern factory depends for its motive power no longer upon the unassisted muscular strength of man, but upon the energy derived from steam or water power, which man directs instead of furnishing. Consequently, the progress of manufactures in a country can be measured better by the amount of power which they utilize than by the number of workmen employed or even the volume of goods produced. Tested by this standard the United States has made great advances during the past two decades, the aggregate motive power employed in manufactures increasing over 200 per cent., from 3,410,837 horse power in 1880 to 11,300,081 horse power in 1900. In addition to this, more than 2,500,000 horse power are used by the electric railways and central lighting stations. The tendency of machine production to concentrate in large establishments is shown very clearly by the great increase in the average horse power per establishment, which grew from 9 in 1870 to 40 in 1880 and 67 in 1900. At the same time the tendency toward great operations and the use of large and powerful machinery, which has been so characteristic of our recent industrial development, is illustrated by a similar increase in the number of horse power per machine.

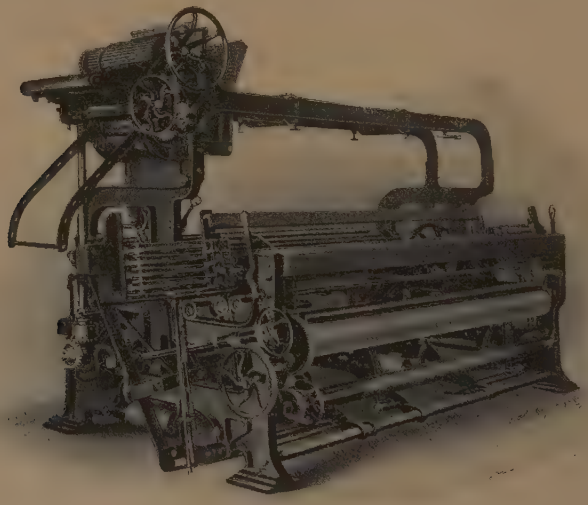
The most striking feature in the application of power to industrial uses is the increasing utilization of electricity, which grew twenty-fold between 1890, when its use may be said to

have begun, and 1900. "The transmission of electric energy, a discovery of the closing years of the nineteenth century, can be compared in importance with the application of steam to the production of power, rendered practical for the first time at the end of the eighteenth." Although it still furnishes but a small proportion of the total power used, the chief importance of electricity lies in its promises for the future. A great improvement was made when the introduction of the alternating current permitted the transmission of electricity over distances previously thought prohibitive. On the Pacific Coast and in the South, magnificent supplies of water-power have been directed, in the form of electricity, to distant mining and manufacturing operations which would otherwise have been impossible.

318. Patents in manufactures. — If we may judge by the increasing number of patents granted in the United States during the past two and a-half decades, inventive genius has not been idle. From 13,000 in 1880 the number grew to 32,000 in 1906, which is the largest number ever recorded for a single year. While not all of these applied to the art of manufacturing, they influenced its growth and called into existence a number of new manufacturing industries. Some of those which date practically since 1880 are as follows: bicycles and tricycles, electrical apparatus and supplies, dynamite and smokeless powder, chemical fire extinguishers, glucose, oleomargarine, fountain and stylographic pens, phonographs and graphophones, cash registers, rubber goods, typewriters and supplies. The value of electrical apparatus alone in 1900 was $91,000,000, and the total value of the products named above was almost $300,000,000. Not only have the mechanical and agricultural industries been in many cases revolutionized, but the means of communication, transportation, trade, and even social intercourse have been greatly modified or changed. The improvements in the telephone, the invention of the typewriter and the linotype machine, of the cash register, of various medicines and serums, of the steel frame building, electric lighting, wireless telegraphy, etc.,

serve to suggest some of the numerous points at which our lives are affected by the inventions patented during the last generation.

319. The textile industry. — The growth of the textile industry has kept pace with the general industrial development of the country, the value of the products of the combined textiles having increased almost 60 per cent. between 1880 and



HEAVY WORSTED LOOM

Up to the time of the Civil War domestic producers were handicapped by lack of effective machinery, but some original inventions about 1863 paved the way for the expansion of the woolen industry. The cut shows an American loom for weaving the heaviest grades of worsted and woolen fabrics.

1900. If to the textile manufactures proper, which include cotton, woolen, and silk goods, hosiery and knit goods, flax, hemp, and jute, and dyeing and finishing, we add the clothing industry, we obtain a gross value of products amounting to over $1,600,000,000. The magnitude of the industry will perhaps be illustrated best by a comparative table, showing its growth since 1880:

COMPARATIVE SUMMARY OF THE COMBINED TEXTILE INDUSTRIES

Year	Number of Establishments	Capital	Number of Wage-earners	Cost of Materials	Value of Products
1880	4018	$412,721,496	382,136	$302,709,894	$532,673,488
1890	4276	767,705,310	517,237	447,546,540	759,262,283
1900	4312	1,042,997,577	661,451	521,345,200	931,494,566

Large as these figures appear, the domestic production of textile goods still falls short of the home consumption by some

SPOOLING ROOM, PACIFIC MILLS, LAWRENCE, MASS.
A spooling machine is a machine for winding the spun thread on spools. The work is simple, the chief task being to replace the filled spools with empty ones, and a single operative can therefore manage a number of machines.

$56,000,000. American manufacturers have, however, steadily supplied a larger and larger proportion of the home demand, and to-day have almost fully occupied the domestic market.

Even in the manufacture of silk goods, whose growth is but of yesterday, they supply 80 per cent. of the total consumption; in 1870 the domestic manufactures contributed but 33 per cent. to the total. In comparison with other nations the United States in 1900 ranked second as a manufacturer of textiles, being surpassed only by Great Britain in the production of cotton and woolen goods and by France in silk goods. The rank of the various countries is probably shown most fairly by the number of spindles in operation; judged by this test the five leading industrial nations stood as follows: United Kingdom, 45,000,000; United States, 18,591,000; Germany, 7,156,000; Russia, 6,091,000; France, 5,039,000.

The textile industry in the United States is essentially gregarious, being largely concentrated in the New England States, and Pennsylvania, New York, and New Jersey. The predominance of New England, however, which in 1880 had two thirds of the capital employed in textile manufactures, has been greatly affected by the rapid advance of cotton manufactures in the southern States.

320. The iron and steel industry. — No industry in the United States has shown greater rapidity of development, more extreme concentration, or larger wealth of resources than the iron and steel industry. Its evolution on a large scale did not begin until about 1887, as is seen in the following brief table:

COMPARATIVE SUMMARY OF THE IRON AND STEEL INDUSTRY, 1880–1900.

Year	Number of Establishments	Capital	Number of Wage-earners	Cost of Materials	Value of Products	Tons of Products
1880	792	$209,904,965	140,798	$191,271,150	$296,557,685	6,486,733
1890	719	414,044,844	171,181	327,272,845	478,687,519	16,264,478
1900	669	590,530,484	222,607	522,431,701	804,034,918	29,507,860

The iron and steel industry falls into two general divisions: the first comprises the production of pig iron, and the second

the conversion of pig iron into commercial iron and steel and the manufacture of various products. The United States has for some years produced more pig iron than any other country in the world; in 1902 she produced over 40 per cent. of the world's supply, or more than Great Britain and Germany combined, which held second and third rank respectively.

BLAST FURNACE, YOUNGSTOWN, OHIO

The ore, with limestone and coke, is smelted in cylindrical furnaces, often 100 feet in height, by means of a hot-air blast. As the iron melts, it is drawn off through an opening at the bottom of the furnace, the lighter slag being drawn off through a higher opening. The furnace is continually charged anew at the top, and sometimes runs for months without stopping.

The most striking feature of the iron industry in the United States is its concentration in large establishments, where the most improved machinery is employed. From 341 in 1880 the number of establishments declined to 224 in 1900, although the number of tons of pig iron produced during the same period rose from 3,375,912 to 14,452,234 tons. At the same time the

average capacity of the blast furnaces increased from 25 tons per day in 1880 to 148 tons twenty years later. In one of the mammoth furnaces of the Carnegie Company a daily production of 901 tons was obtained for the month of June, 1902. Another change has taken place in the fuel used, bituminous coal and coke having almost completely supplanted anthracite coal and charcoal. Pig-iron production is strongly centralized in three great centers. Pennsylvania and Ohio constitute one field in which coal is abundant and cheap, and to whose furnaces iron ore from the prolific and easily worked Lake Superior mines may be cheaply shipped by way of the Great Lakes; nearly two thirds of the pig iron was produced in these two States in 1900. Illinois forms a second field and Alabama and Tennessee a third.

321. The manufacture of steel. — The principal change that has occurred in the iron and steel industry in the last generation has been the substitution on a large scale of steel for iron products. In the United States less than one third of the pig iron produced in 1880 was converted into steel; in 1900 about four fifths was so converted. Steel rails have completely supplanted iron ones, only a few tons of the latter being produced in 1900. The use of steel for the construction of large office buildings, bridges, cars, wire and wire nails, is of recent growth; but in these and a thousand other products a new demand has been created for steel. Another important change in the steel industry is the process by which it is made. A revolution was effected in the industry when Bessemer steel was first manufactured in 1864 and began to supplant iron. The age of Bessemer steel, however, is, according to Mr. Carnegie, already passing away, "to be succeeded by the age of Siemens open-hearth steel."

Bessemer steel is made by running the molten iron into a converter; a cold blast of air is then blown through the metal at high pressure to eliminate the carbon. This process can be employed only with iron which does not contain more than a thousandth part of phosphorus. In the open-hearth process

the pig iron is mixed with scrap-iron in a brick-lined furnace, and when molten the other elements desired are added; the advantage of this method is that it permits the conversion into steel of pig iron which contains as much as 10 per cent. of

ROLLING MILL AT EDGAR THOMSON WORKS, PITTSBURG

The three principal methods of working metals are founding, forging, and rolling, and of these three methods that of rolling has been chiefly instrumental in extending the use of iron and steel for structural purposes to its present enormous proportions. Rolling consists in working metal ingots into rails, bars, plates, rods, and structural shapes by passing them repeatedly when intensely hot between cylindrical rolls. Generally each set of rolls has two or more grooves, each set of which approaches more closely to the form of the finished piece than the set of grooves preceding it, and the metal is passed through these grooves in order. Commonly also several sets of rollers are employed, each set of which brings the piece closer to its final form than the set preceding. In the illustration is shown a white-hot ingot being guided to a set of rolls.

phosphorus. The basic open-hearth method is thus well adapted for use in the southern States, where the ore is decidedly impure. The steel industry also shows the same expansion and concentration into huge establishments with machinery of great capacity.

The average capacity of a Bessemer converter has trebled (5 to 15 tons) between 1880 and 1900, and the capacity of the average open-hearth furnace has quintupled in the same period (10 to 50 tons). At the same time the total daily capacity of the steel mills of the country has increased from 20,000 to 90,000 tons. Not only has the size of the single establishment grown, but the number of hitherto separate industries combined under one organization has greatly enlarged: iron and coal mines, railways and steamers, coke ovens and blast furnaces, steel plants and machine shops, have all been brought together under a single head, as in the case of the United States Steel Corporation.

322. Other industries. — The census of 1900 enumerates 354 distinct industries; of these the sixteen following turned out products with a gross value of more than $200,000,000 during the year 1900:

Iron and steel	$804,000,000
Slaughtering and meat packing	790,000,000
Foundry and machine shop products	645,000,000
Lumber and timber products	567,000,000
Flouring and grist mill products	561,000,000
Men's clothing	415,000,000
Printing and publishing	347,000,000
Cotton manufactures	339,000,000
Carpentering	316,000,000
Woolen manufactures	297,000,000
Boots and shoes	261,000,000
Sugar and molasses refining	241,000,000
Malt liquors	237,000,000
Cars and railroad shop construction	218,000,000
Leather	204,000,000
Masonry, brick, and stone	203,000,000

From this list it will be seen that the most important manufactures consist in working over the raw material; the value added by the process of manufacture is not yet as great as the value of the raw material. In the younger and smaller manufacturing industries the reverse is probably true. These in-

dustries are scattered over the whole country, though four of the States are pre-eminently industrial, each showing products worth more than $1,000,000,000 in 1900: these were New York, Pennsylvania, Illinois, and Massachusetts. Only two others have a product value of over $500,000,000, namely Ohio and New Jersey.

323. The mining industry. — The industrial supremacy of the United States rests so firmly upon the rich mineral resources of the country that it is desirable to note briefly in connection with manufactures the progress of the mining industry also. In the production of the three mineral products which are most essential to modern industry — coal, iron, and copper — the United States leads all other nations; it also stands first in the production of petroleum, phosphate of lime, lead, gold, silver, and aluminum, and second in the production of zinc. In 1900, for the first time, the total value of the commercial mineral production exceeded the enormous sum of $1,000,000,000; and by 1905 was one half as much again. This was an increase from $369,000,000 in 1880, and $619,000,000 in 1890. The following table shows the growth of the mineral industries from 1880:

MINERS AT WORK

In the ordinary mine the rock must be drilled and the holes charged with explosives. The rock and ore blasted off are then taken to the surface to be separated and treated. The illustration shows miners at work in a drift in a shaft iron mine. The cost of such underground iron mining is about $1.00 a ton, as against 10 to 50 cents a ton, in an open pit mine.

SELECTED MINERAL PRODUCTS OF THE UNITED STATES, 1880–1905

Product	1880	1890	1900	1905
Coal, long tons	63,822,830	152,809,874	263,537,465	353,429,243
Pig iron, long tons	3,375,912	9,202,703	13,789,242	22,702,397
Copper, pounds	60,480,000	265,115,133	606,117,166	871,634,245
Gold, fine ounces	1,741,005	1,588,880	3,829,897	4,260,504
Silver, fine ounces	30,320,000	54,500,000	57,647,000	58,918,839
Petroleum, barrels	26,286,123	45,822,672	63,620,529	139,889,210
Lead and Zinc, short tons	121,064	207,313	394,710	524,222

While the total value of the mineral products lags far behind the values of agriculture and of manufactures, the rate of increase since 1880 has been much more rapid. Two thirds of the mineral wealth was obtained from the northern States, and especially in those sections where coal and iron were being mined. The most important mining States, in order, were Pennsylvania, Ohio, Michigan, West Virginia, and Colorado.

324. Tariff changes. — In spite of the reductions in the internal revenue system made after the war, the receipts of the government increased rapidly and by 1881 there was a surplus of $101,000,000 in the treasury. A further reduction was made in 1883 in the excise duties by lowering the rate on tobacco by one half and by abolishing some other unimportant and irritating taxes, such as those on bank deposits, capital and checks, friction matches, patent medicines, perfumery, etc. The effect on the increasing surplus was slight, and the feeling was strong throughout the country that a similar reduction should be made in the tariff duties. A tariff commission, appointed by President Arthur in 1882, recommended "a substantial reduction of tariff duties" of from 20 to 25 per cent. Congress, however, in which the protectionist sentiment was strong, refused to sanction such a radical change, and in the tariff act of 1883 made an average reduction of only 5 per cent.; the principal reductions took place in those manufactures which were least affected by foreign competition.

After several unsuccessful attempts at tariff revision by the Democrats, who had gained control of the House in the elections of 1884, President Cleveland at length sharply defined the issue in his annual message of December, 1887, by demanding the reduction of the tariff and the admission of free raw materials.

SHAFT IRON MINE

Until the discovery of the rich ore beds of the Lake Superior regions, where the ore is dug out of an open pit by steam shovels, practically all the iron mined in the United States was situated at a distance below the surface and had to be approached by shafts, as is the case in Great Britain and Europe. Mine cars are sometimes run out of the shaft of the mine on to a trestle, as shown in the illustration, from which the ore passes down a chute to the railway cars.

The elections of 1888 resulted in a victory for the Republican party, which construed it as an endorsement of their policy of high protection. Accordingly, the McKinley Act of 1890 was passed, greatly increasing the general level of duties, from 38 to 49.5 per cent. The "pauper labor" argument

was used with great effect in the debate on this bill, and protectionism was now advocated, not, as Hamilton had argued, as a temporary aid to young industries, but as a permanent policy. The bill imposed higher protective duties upon wool, the finer grades of woolen and cotton goods, cutlery and tin plate, etc., and extended them so as to cover a number of agricultural commodities. Sugar was put on the free list, a bounty was granted on sugar produced in the United States, and reciprocity was provided for. At the same time the accumulating surplus was disposed of by new and extravagant appropriations for pensions and other purposes. This tariff policy was quickly reversed by a Democratic Congress, by the passage of the Wilson Act, which placed wool, copper, and lumber upon the free list, reduced the duties on many protected commodities, and reimposed a revenue duty upon raw sugar. The average level of duties under this act was 39.9 per cent. It also contained a clause providing for an income tax of 2 per cent. on all incomes over $4000, but this section was declared unconstitutional. The victory of the Republicans two years later led to another revision of the tariff and the passage of the Dingley tariff of 1897, which raised the general average of duties to the highest point since the Civil War, namely, 57 per cent.

325. Commercial policy and reciprocity. — The key-note of our commercial policy has from the very beginning been the reservation of the home market for the domestic manufacturer, and the exclusion of foreign competition. Especially after the highly restrictive period of the Civil War has this played an important rôle. Such a policy has necessarily been a one-sided one, and its inconvenience has more than once been felt as our agricultural exports have sought foreign markets and especially since the period of our recent industrial expansion. Spasmodic efforts had been made to secure reciprocity treaties with a few foreign nations, but little of permanent value was accomplished before 1889. In that year a Pan-American Congress met in Washington, consisting of delegates from

most of the Central and South American countries. Among other things they recommended reciprocity treaties, and the tariff act of 1890 accordingly gave the President authority to establish by treaty commercial relations on a basis of reciprocity. The basis of the policy was that the United States would admit free of duty sugar, molasses, coffee, and hides, if the nations exporting these commodities would receive on a just basis our agricultural and other products. It was designed to apply particularly to the Central and South American countries, and treaties were made with several of them; of European nations, Germany, France, and Austria-Hungary alone made such agreements. The principle of reciprocity was reaffirmed by the Dingley Act of 1897, although it has not been extended in practice since that time.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XXVI

1. Describe the recent industrial development of Germany. [Webster, General Hist. of Com., 457–468; Williams, Made in Germany; Dawson, Protection in Germany; No. Amer. Rev., CLXVI, 54; Econ. Journ., XI, 565.]

2. Describe the recent industrial development of England. [Webster, General Hist. of Com., 446–456; Gibbins, Industry in Engl., 454–474; Cheyney, Intro. to Ind. and Soc. Hist. of Engl., 199–311; No. Amer. Rev., CLXIX, 544; Econ. Journ., X, 295–307.]

3. Illustrate in greater detail the economies effected by concentration in large establishments. [Twelfth Census, X, 723; Rep. of Industr. Com., I, 68, and "Economies of Comb." in Gen'l Index of Testimony; Jenks, The Trust Problem, chap. 2; Mussey, Combination in the Mining Industry.]

4. What connection is there between the growth of cities and manufacturing? [Twelfth Census, VII, 218, 256; Weber, Growth of Cities.]

5. What is the principal manufacturing industry of your home? Why was it situated there?

6. Is the West likely to become a manufacturing section? Give your reasons.

7. To what extent has child labor been employed in manufacturing? What is the situation in the South to-day? [Wright, Practical Sociology, 214; Hunt, Workers at Gainful Occupations; Willoughby and de Graffenried, Essays on Child Labor.]

8. Mention the chief economies due to the use of electricity in manufactures. [Twelfth Census, VII, 327; Leroy Beaulieu, 214–216; Morrison, The New Epoch.]

9. What are some of the notable achievements in the generation and transmission of electric power? [Twelfth Census, VII, 322; consult Poole's Index for additional references.]

10. Describe the utilization of wastes and by-products in the more important industries. [Twelfth Census, X, 723–748; Kittredge, Utilization of Wastes, in Sci. Amer. Suppl., LIV, 22462, 22478, 22498, 22518.]

11. Trace the growth of some one industry that has shown especially rapid growth, and give the principal reasons therefor. [Twelfth Census, IX, X.]

12. Describe the iron ore supplies of the Lake Superior region, and the labor-saving ore-mining and handling devices used. [Taussig, in Quart. Journ. Econ., XIV, 156–7; Rep. of Brit. Iron Trade Com., 30–47, 105–109, 412; Mussey, Combination in the Mining Industry.]

13. Describe the organization and management of the Carnegie Company, the National Cash Register, or other large company. [Rep. of Brit. Iron Trade Com., 74–84; Rep. Ind. Com., vols. VII, XIV; Meade, Trust Finance, chap. 11.]

14. Is there any connection between the industrial development of the United States and the rise of protectionism in England? [W. J. Ashley, The Tariff Problem, chaps. 4, 5.]

15. Is the "agrarian" policy of Germany good for that country? [Dawson, Protection in Germany; Ashley, Modern Tariff Hist., 106, 113 ff.]

16. Has the total wealth of the United States been increased by the policy of protection? [Bullock, 348, 354; Taussig, Tar. Hist., 361 ff.]

17. Products from the Philippines paid import duties upon being imported into the United States before annexation; if after annexation they were admitted free, who would gain and who lose?

18. What were the reciprocity features of the tariff act of 1890? [Act of 1890, sec. 3; Laughlin and Willis, Reciprocity, chaps. 6, 7; Taussig, Tar. Hist., 278.]

19. What were the provisions of the act of 1897 relating to reciprocity? How did they compare with those in the act of 1890? [Act of 1897, sects. 3, 4; Laughlin and Willis, Reciprocity, chap. 9; Taussig, Tar. Hist., 352; Ashley, Mod. Tariff Hist., part 2, chap. 8; Osborne, Reciprocity in the Amer. Tariff System, in Annals, XXIII, no. 1.]

20. What are the "infant industries" and "pauper labor" arguments in favor of protection? Are they valid to-day? [Bullock, Intro., 361; Seager, Intro., 372–5; Walker, Polit. Econ., 511.]

SELECTED REFERENCES. CHAPTER XXVI

*Ashley: Modern Tariff History, 212–262.

**—— Twelfth Census (1900), vols. VII–X.

**—— Industrial Commission Report, vols. VII, XIV, XIX, 585–594.

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**Leroy–Beaulieu: The United States in the Twentieth Century, 157–336.
*Taussig: Tariff History of the United States, 230–283.

Laughlin and Willis: Reciprocity, chaps. 6–9.
Lawson: American Industrial Problems, chaps. 8, 9, 12, 13, 20, 26, 29.
—— Monthly Summary of Commerce and Finance, February, April, August, December, 1900.
—— Mosely Industrial Commission Report.
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Taussig: The Iron Industry in the United States, in Quarterly Journal of Economics, XIV, 475–508.

CHAPTER XXVII

INDUSTRIAL COMBINATIONS

326. Tendency toward combination. — We have seen how rapidly the industrial expansion of the United States after the Civil War led to an increase in the size of manufacturing enterprises. The old-fashioned methods of petty producers with small capital were insufficient to develop the wealth of natural resources lying open to the people, and they were steadily supplanted by establishments of growing size and complexity. But not merely did the size of the single establishment grow; the characteristic feature of the industrial development of the last two decades of the nineteenth century was the combination of hitherto independent businesses into single concerns with centralized management. Industry began to be organized and carried on by the great captains of industry, small independent producers to disappear, and laborers to be marshaled in bodies of a thousand men or more. Inequalities in the distribution of wealth and the growth of a distinct wage-earning class offered new economic problems for solution.

Until the construction of adequate transportation facilities, the average business establishments in the United States were essentially local in their nature, supplying a comparatively narrow market and using a small capital. With the rapid extension of the railway system after the Civil War, it became possible to expand operations over a wider territory, to localize and concentrate manufactures, and to use larger masses of capital in a single establishment. With the widening of the market there went on, therefore, an expansion of the business unit, and the modern trust became an economic possibility.

327. Organization of American industry. — The early rise of corporations with limited liability, seventy-five years ago, has already been alluded to. With the urgent and growing demand at that time for better means of communication and

transportation and internal improvements of every kind, the Federal and State governments both attempted to meet this need. After their disastrous failure and withdrawal from this field of enterprise, the growth of private corporations to carry on the work was inevitable and necessary. In spite of early abuses this form of business enterprise soon justified itself, and since that time there has been a steady shifting of capital from private independent management to corporate control. The corporation with limited liability offered special facilities for doubtful ventures in the way of railroad building and similar improvements, and speedily grew in favor. Even industrial enterprises, such as manufacturing concerns, began generally to be organized under this form; indeed, the growth in the number of corporations has been nearly identical with the increase of large-scale production and concentration of production. Omitting the hand trades from consideration, the following table shows that while only an eighth of the industrial establishments in the United States in 1900 were corporate in form, they turned out nearly two thirds of the goods manufactured:

FORMS OF ORGANIZATION OF MANUFACTURING ESTABLISHMENTS, 1900.

Form	Number of Establishments	Per cent.	Value of Product (in millions)	Per cent.
Individual manufacturers	189,180	63.2	$1,897	16.0
Partnerships	67,125	23.4	2,260	19.1
Corporations	38,052	12.7	7,633	64.6
Coöperative societies, etc.	2,093	0.7	31	0.3
Total	296,450	100.0	11,821	100.0

328. Early attempts at combination. — Under the pressure of these forces the movement towards industrial reorganization began. Various devices had been resorted to for the purpose of restricting competition, of which the earliest and most

common was an agreement between competing producers to fix prices or to limit output, as in the case of the railroads and anthracite coal mines; a second method was the establishment of a common selling bureau, as illustrated by the Michigan Salt Association. These agreements were extremely loose and constantly broken by the members under the temptation of higher profits. A stronger form of organization, involving more complete control over the separate establishments, was felt to be necessary, and under the leadership of John D. Rockefeller, the Standard Oil Company was reorganized as a "trust" in 1882. According to this scheme a board of nine trustees was selected to whom the stockholders surrendered their stock, receiving in return trust certificates; the trustees then operated all the plants in harmony, and divided the profits among the holders of the trust certificates.

The success of this new combination led to the formation of similar arrangements in the manufacture of whisky, sugar, lead, cottonseed oil, starch, etc. Hostile legislation and adverse decisions of the courts forced the trusts to change their form about 1890. The trusts were dissolved, but in legal form only, for the combinations continued under other names. Instead of a combination of several distinct companies, the various properties were now united into a single corporation. Industrial consolidation is accordingly the final stage in the evolution of combination. Several of the States, notably New Jersey, have passed laws favorable to corporations wishing to reorganize under this form for an interstate business. While the technical "trust" has been legally destroyed, the name survives as a designation for all large combinations of capital, especially if they are thought to possess monopoly power.

329. The trust movement. — The early combinations, though important, were few in number. It remained for the closing years of the nineteenth century to witness the wholesale reorganization of manufacturing, transportation, and trading enterprises into industrial combinations.

According to a competent financial authority (The Com-

mercial Year Book, 1900, Book I, Vol. V, p. 564) the following table represents the growth of the "industrial" (manufacturing and commercial) and gas trusts in the United States from 1860 to 1900, not including combinations in banking, shipping, railroad transportation, etc:

Decade	Number Organizations	Total Nominal Capital
1860–1869	2	$13,000,000
1870–1879	4	135,000,000
1880–1889	18	288,000,000
1890–1899	157	3,150,000,000
Total, 40 years	181	$3,586,000,000

The movement began on a large scale in 1898, and ran at fever heat through the two following years: in the single year 1899 new combinations were reported with a nominal capital of $3,512,000,000, of which, however, more than three quarters represented the original capital of the reorganized companies; in the following year the United States Steel Corporation was organized with a capital of $1,100,000,000 in addition to a bonded indebtedness of $304,000,000. Promoters and speculators took advantage of the eagerness of the investing public to purchase industrial securities, and floated many questionable enterprises. Over four billion dollars' worth of securities was marketed by the new industrial trusts before the movement spent itself. By 1903, however, it came to an end; the collapse of the ship-building trust revealed some of the evils of fraudulent trust financiering, and the decline of the stocks of most of the new companies disillusionized the investor and brought about a general reaction in public sentiment. Many exaggerated estimates have been made of the extent of this movement, but the most trustworthy count at the time it was made was probably that of the census of 1900, from which pools and simple expansion of existing businesses have been excluded. One hundred and eighty-five industrial combinations

were reported, comprising less than one-half of 1 per cent. of the establishments in the country, but owning 15 per cent. of the capital, employing 8 per cent. of the employees, and turning out 14 per cent. of the manufactured products in the United States. The greatest combinations had taken place in the iron and steel industry, which alone produced nearly one third of the gross value of the products of all industrial combinations. The largest combination of all, however, — the United States Steel Corporation — was not included in this report. The following table gives a summary of the census statistics of trusts in 1900, arranged by industries:

INDUSTRIAL COMBINATIONS

Industry	No. of Comb.	No. of Plants	Capital	Average No. of Wage-earners	Cost of Materials	Value of Products
Iron and steel	40	447	$341,779,954	145,609	$325,630,784	$508,626,482
Food and kindred products	22	282	247,944,675	33,165	243,315,234	285,941,066
Chemicals and allied products	15	250	176,502,835	28,401	142,572,256	184,914,344
Metals and metal products other than iron and steel	11	89	118,519,401	20,522	131,020,638	180,154,703
Liquors and beverages	28	219	118,489,158	7,624	19,117,973	93,432,274
Vehicles for land transportation	6	65	85,965,683	34,422	56,600,518	85,985,533
Tobacco	4	41	16,191,818	17,661	23,809,804	74,063,029
Textiles	8	72	92,468,606	37,723	41,919,311	71,888,202
Leather and its finished products	5	100	62,734,011	9,898	35,463,655	45,684,829
Paper and printing	7	116	59,271,691	16,706	24,554,364	44,418,417
Clay, glass and stone products	15	180	46,878,928	20,294	6,474,816	23,258,182
Lumber and its manufactures	8	61	24,470,281	10,778	11,028,757	20,378,815
Miscellaneous industries	16	118	45,408,869	17,243	28,158,224	48,605,073
Total	185	2040	$1,436,625,910	400,046	$1,089,666,334	$1,667,350,949

330. Extent of the trust movement. — Even since the publication of this conservative report, other combinations have been effected which greatly change these figures. In 1904 it was estimated that 318 industrial trusts with a capital of $7,246,000,000 and representing consolidations of nearly 5300 distinct plants existed in the United States; of this capital, over one third was controlled by seven great organizations. While these figures are far from trustworthy they at least serve to indicate roughly the extent to which combinations of various sorts have entered into our national industrial life. They control more or less successfully the production of tobacco, petroleum, sugar, linseed oil, iron and steel, copper, ship-building, beef, starch, flour, cottonseed oil, candy, chewing gum, cereals, ice, glucose, crackers, matches, whisky, anthracite coal, fertilizers, tin cans, farming tools, locomotives, writing-paper, school furniture, sewer pipe, glassware, rubber goods, buttons, leather, electrical supplies, etc., etc.

The transportation business was one of the first to be organized in the hands of a few monopolistic companies, — on a national scale in the case of the steam railroads, and locally for the street railways. Telegraph, telephone, express, gas, water, and electric lighting, and other natural monopolies have long since been brought under centralized control. It is evident, therefore, that combination and organization of immense industries under unified control are facts of our modern industrial life which must be recognized and studied if we are to understand present economic tendencies.

331. The Standard Oil Trust. — A brief sketch of the development of the Standard Oil Company, the oldest and still the most powerful industrial trust, will bring out some of these points more clearly. For several years after the discovery of petroleum in 1859, the business of producing and refining it was carried on by private individuals under highly competitive conditions. In 1865 a Cleveland firm, which had steadily prospered as a result of good management and improved methods of refining the oil, was organized under the name of

the Standard Oil Company, with a capital of $100,000. They gradually extended their operations, acquired control of rival refineries, sometimes by unfair methods, and established agencies in other States. In 1872, under the name of the South Improvement Company, they secured rebates from the railways, not merely on their own oil, but on all shipments by their competitors. While this conspiracy was quickly discovered and the South Improvement Company, which was immediately

OIL WELLS

This is a general view of the gushers and oil wells at Spindle Top, Texas. Large discoveries of oil were made in southern Texas in 1901, and the oil regions were soon covered with derricks and perforated with wells.

disowned by the Standard Oil, lost its charter, the parent company secured discriminating rates in its favor soon after and has enjoyed them down to the present time. On this point Commissioner Garfield, of the Bureau of Corporations, in his report of May 2, 1906, on the Standard Oil Company, made the following emphatic statement: "The Standard Oil Company has habitually received from the railroads, and is now receiving, secret rates and other unjust and illegal discriminations."

Improvements were, however, also made in methods of

production, of transporting the oil by means of tank cars and of pipe lines, of storage in huge tanks erected at convenient points, and of refining the oil and utilizing the various by-products. The company soon obtained a practical monopoly in the business of refining oil, and more recently has secured possession of the greater part of the oil-producing regions. By reason of its great economies in production it has been able to reduce the price of oil, and at the same time to pay enormous profits to the stockholders. In 1882 it was organized as a trust, but when that form of organization was declared illegal the trust was dissolved and the business was organized separately under the corporation laws of each State. Accordingly, the Standard Oil Company consists to-day of some twenty different corporations in as many different States, but with the same stockholders in all, the parent company being organized under the laws of New Jersey.

332. Are the trusts monopolies? — The word monopoly covers so many meanings that it is necessary before going further to distinguish the different kinds of monopoly. They may be classified briefly as (1) legal monopolies, as those granted private individuals by the government in a patent, or reserved by the government for itself, as the postal business; (2) natural monopolies, as anthracite coal, street railways, gas plants, etc.; (3) capitalistic monopolies, which by virtue of their large capital and the concentration of production exercise considerable monopolistic power. It is to this last group that the name "trust" has been popularly applied. Some of the combinations have secured undoubted monopoly by their control of the patents in certain lines of manufacturing; thus the American Steel and Wire Company makes practically all of the barb wire and wire fencing manufactured in the United States. The Anthracite Coal Combination, by virtue of its ownership of almost the sole source of supply, has a natural monopoly, as does also, in a lesser degree, the Standard Oil by its control of the pipe lines. But it is also possible for a company, by reason of the very size of its capital, to maintain practical

control of the market. A modern sugar refinery costs at least $1,000,000, while to build and thoroughly equip a plant for the manufacture of steel, and to carry on the business, an investment of from $20,000,000 to $30,000,000 is required. The necessity of so large an amount of capital effectually prevents free competition. To have a monopoly, moreover, it is not necessary for a company to completely control the industry; the production of even 50 or 60 per cent. of the supply may suffice to secure a virtual monopoly.

333. Advantages of combinations. — Among the causes and advantages of combination, usually first cited by the organizers, are the economies in production and marketing thereby effected. Only the best located and most efficiently equipped plants are operated; one of the most striking phases of modern American industry is the readiness with which obsolete machinery is consigned to the scrap-heap, and nowhere has this characteristic been better exemplified than in the action of some of the most successful trusts, as the Standard Oil, the whisky, the steel trust, etc. Economy in marketing is also secured by those trusts which have plants located in various parts of the country, among which orders are so distributed as to save the cost of distant transportation; this is well illustrated in the case of the salt trust, as well as of those just mentioned. The cost of advertising, of traveling salesmen, and other items which figure largely in a strongly competitive business, may be materially reduced under combination. Another advantage which has often been claimed, as by the sugar and tobacco trusts, is the exchange of the best ideas in the combining plants, and the raising of the efficiency of all to the level of the best. Othe things being equal, the combinations will probably be able t secure the best talent and organizing ability for their service. Bu on the other hand, the expense of supervision tends to grow mor than proportionately after a certain point is reached. Many c these economies, too, are shared equally by independent large scale producers, and it is with these, rather than with smal scale manufacturers, that any comparison should be made.

334. Evils of capitalistic monopolies. — In so far as the industrial trust secures economies of production which would not otherwise have been effected, it is justified as an efficient mode of organization. Savings in production as a result of large-scale methods are, however, not new, but have characterized the manufacturing industries of the United States

ONE OF THE LARGEST PAPER MACHINES IN THE WORLD

The enormous rolls are of newspaper, manufactured from wood pulp. The United States uses annually nearly two million cords of wood in the manufacture of paper, an area half as large as Rhode Island being stripped of timber to supply the paper mills. Most of these mills are located near the sources of the raw materials.

since the middle of the century and have contributed largely to concentration of business. The peculiar economies effected by the trust lie rather in the savings in marketing, and these are secured both in the purchase of raw material and the sale of the finished products. But in these very economies lurk certain dangers to both producers and consumers, which

constitute the chief objections to industrial combinations. The producers of raw materials, as cattlemen, crude oil producers, sugar growers, and others complain that the price at which they shall sell their products is dictated to them by the trust, which is almost the sole purchaser. While the price offered can not be maintained permanently below the cost of production, the producers object to a system which deprives them of possible gains from market fluctuations.

On the other hand, the trusts have not lowered the prices of their products to the public in proportion to their increased economies, and in some cases have even raised them. The chief purpose of combination has always been to control output and prices; the successful trust can best be tested by this standard. The whisky trust, the plate-glass company, the wire nail pool, the cordage trust, and others advanced prices beyond the competitive point; many others, such as the Standard Oil, the tin plate, sugar, steel, salt, and paper trusts have utilized their power to maintain prices at a higher rate while the cost of production was falling, or to reduce them very gradually. On this point the very conservative report of the Industrial Commission concludes "that in most cases the combination has exerted an appreciable power over prices, and in practically all cases it has increased the margin between raw materials and finished products. Since there is reason to believe that the cost of production over a period of years has lessened, the conclusion is inevitable that the combinations have been able to increase their profits."

335. Special favors to the trusts. — The growth of the most powerful trusts has been aided by alliances with natural monopolies, especially railroads. "There can be no doubt," says the Industrial Commission, "that in early times special favors from railroads were a prominent factor, probably the most important factor, in building up some of the largest combinations. The receipt of discriminating favors from railroads has been conceded repeatedly by representatives of the combinations themselves." The Standard Oil Company, the live stock

and dressed beef combinations, the coffee, steel, and other trusts have secured immense advantages over their rivals through the discriminations in their favor by the railroads. Although this evil was forbidden by the Interstate Commerce law of 1887, and was undoubtedly lessened, evidence shows that it is still being practised even at the present time. In so far as the trusts owe their existence to railroad discriminations, their success carries with it no guarantee of superior service or economy; they may have supplanted more efficient but less favored firms. Against such an evil the public has a righteous grievance and should demand immediate relief. Where, however, the trust has supplanted its rival by reason of greater economy of production, the public may pity but cannot afford to maintain the less efficient producer.

Some writers have claimed that the protective tariff constitutes a special favor to the trusts and is one of the chief causes of their growth. A more correct view seems to be that the protective tariff has narrowed the competitive field and has in so far made the formation of a national trust easier. Behind the tariff wall there have grown up the steel, tin plate, sugar, leather, and other combinations.

336. The trusts and labor. — The organization of capital on a large scale and under centralized control seemed at first to constitute a menace to labor, but as time passed it was seen that the apprehended dangers were greatly exaggerated. One of the economies effected by the industrial combination was the reduction in the number of laborers; as plants were consolidated some of the expensive superintendents and least efficient laborers were discharged. It was found possible also to dispense largely with traveling salesmen, of whom over 30,000 were said to have lost their positions in the single year 1898. On the other hand, only the most efficient workmen being retained, it was possible to raise their wages very generally; how far this was due to the superior trust management and how far to the general prosperity which has of recent years prevailed in the country, it is impossible to say. It is also

claimed for the trusts that by eliminating destructive competition they have steadied production and thereby made employment more regular. But the more complete the monopoly of an industrial combination is, the more probable it is that it will exercise this monopoly power over the labor market as well as in other directions. The trade union leaders, however, have thus far expressed no doubts as to the ability of labor to organize as perfectly as has capital, and to secure fair collective bargains between the trusts and the labor organizations. The success of the United Mine Workers' strike in 1902 would seem to show that this faith is not altogether misplaced.

337. Other effects. — Among the other effects usually charged to industrial combinations may be mentioned the legislative corruption which has been shown to be all but universal. Bad as this is, it cannot in fairness be charged up against the trusts as such, for it has been practised equally by large corporations and private firms. The power and practice of the trusts in crushing out smaller rivals by fixing destructive prices, recouping themselves perhaps at another point by raising their prices there, is another serious charge. Where a competitor is forced out of business by the superior efficiency of the trust the economic saving justifies the process, but where the end is secured by unfair means solely for the sake of monopoly, without the compensation of lessened cost of production, the methods can only be condemned. Another result of industrial combination, it is claimed (and with much truth), is the suppression of individual initiative: it is impossible for the man of small means, even with large talents, to engage in business for himself; he must occupy a subordinate position, his individuality is dwarfed; and the country loses by the checking of his development. Without attempting to argue this point it may be noted that there are still large fields of enterprise that lie entirely outside of monopolistic control. Large-scale production is best adapted to articles that can be turned out in large quantities according to uniform patterns and standards; individual initiative is still free in those lines

ARMOUR AND COMPANY'S PLANT AT CHICAGO

The plants under the control of Armour and Company include the meat-packing houses, fertilizer works, soap factory, and hair and glue factory. The packing houses are among the largest in the world, the glue factory is one of the largest on this continent, and the soap factory is also an important one.

of production that call for artistic ability or appeal to individual tastes, or which, like agriculture, are dependent upon variable conditions.

338. Evils of trust organization and management. — Thus far the evils discussed have been those resulting from the monopoly power of the trusts. These have attracted the most attention and against them the legislative remedies have usually been directed. More serious, however, are those evils connected with bad methods of organization and loose administration. Hand in hand with the growth of industrial combinations has gone a relaxation of the incorporation laws of a few States. The careful provisions in the laws of some States regarding over-capitalization, stockholders' liability, the character of the business, responsibility of directors, and similar points, have been set at nought by the lax policy of a few other States, notably New Jersey, Delaware, and West Virginia. Over-capitalization — not merely beyond the actual value of the plants, but beyond the earning power — has attended practically every reorganization of competing firms into an industrial combination. This has been the inevitable result of the speculative methods practised by the trust promoters and underwriters; it could be successful only to the extent to which it deceived investors. The attempt to sell large amounts of watered stock on the stock market has also led to faulty financial administration of the business, to the declaration of unearned dividends, the increase in the floating debt, the neglect of the surplus reserve, and in some cases, as the United States Ship-building Company, to actual fraud. Owing to the fact that a corporation chartered in one State is at liberty to do business in all the other States of the Union, evils of this character are peculiarly elusive and difficult to control.

339. Trust legislation. — Under the common law monopoly was a crime, punishable by fine and imprisonment, and agreements in restraint of trade, carried so far as to be unreasonable, were held to be illegal and unenforceable. In 1887 Congress

passed the Interstate Commerce Act, prohibiting pools among railways, and three years later the Sherman Anti-Trust Law, which provided that "every contract, combination in the form of a trust or otherwise, or conspiracy in restraint of trade or commerce among the several States, or with foreign nations, is hereby declared illegal." At the same time there began the enactment of anti-trust legislation by the States; thirty-two States and two Territories in all passed such laws, and in seventeen States anti-trust provisions were inserted in the State constitutions. These enactments were very severe, but before they could be fairly tested in the courts, they were deprived of all power to control the growing trusts by the lax policy of the three "charter-granting" States, New Jersey, Delaware, and West Virginia, which not only failed to pass any anti-trust legislation, but greatly relaxed their existing statutes. Ninety-five per cent. of the trusts were accordingly incorporated in these States, and as a corporation can be deprived of its charter only for violation of the laws of the State in which it is incorporated, the other States were helpless. Defects in the Federal acts were soon discovered also, and though these were partially remedied by the Elkins Law of 1903, which facilitated prosecutions under the Interstate Commerce Act, and by the creation of the Federal Bureau of Corporations with power to make "diligent investigation into the organization, conduct, and management" of corporations engaged in interstate commerce (railroads excepted), the statutory control of trusts remains very slight.

340. Trust regulation. — In view of the failure of existing methods and statutes to remedy the evils of the trusts, various suggestions have been made for further regulation. "The evils of combination, remedied by regulative legislation, come chiefly from two sources: (1) the more or less complete exercise of the power of monopoly; (2) deception of the public through secrecy or false information." [1] To meet the first difficulty numerous measures have been advocated, such as a

[1] Rept. of Ind. Com. XIX, 645.

constitutional amendment which should give complete control of all interstate commerce to the Federal government; but such a measure, which would lead to very great centralization of power in the hands of Congress, is unlikely. The extension of federal control under existing statutes has been urged, by forbidding the use of the mails to the trusts, by government ownership and management of monopolized products, by forbidding the unfair underselling of rivals in competitive markets, by the removal of special favors which have caused the growth of monopolies, such as railway discriminations and protective duties, by Federal taxation of interstate commerce, and by fixing maximum prices. Against the second class of evils legislation requiring publicity and ensuring the responsibility of officials has been especially urged, and commends itself by its reasonableness. The first step toward such control has been taken by the creation of the Bureau of Corporations in the Department of Commerce and Labor, the first result of whose labors was the report on the beef trust. The application of other remedies, social rather than legislative in character, has also been suggested, such as the boycotting of trust-made goods, the social ostracism of trust magnates, etc.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XXVII

1. Does the tendency towards combination indicate an irresistible movement to socialism, or to government management of all production? [Chicago Conference on Trusts, 569; Nettleton, Trusts or Competition, 267–273.]

2. Can the large establishment always undersell the small one?

3. Are you personally familiar with any agreement to control prices? What was its effect?

4. "Would it be a good thing for society if a trust made great economies in production, crowded out its smaller competitors, and maintained prices just where they were before, dividing among its shareholders the amounts saved?"—[Fetter.]

5. Do you know of any instances where a trust has unfairly crushed out competition? [Montague, 84; Jenks, 155; von Halle, 22; Lloyd, Wealth against Commonwealth; Rep. Ind. Com., I, 20 (and references to testimony), XIII, xxiii (and testimony).]

6. Relate the history of some of the most important industrial com-

binations, as the standard oil, steel, ship-building, international marine, copper, etc. [Rep. Ind. Com., XIII, xli–cxxii, Moody, Truth about Trusts; Ripley, Trusts, Pools, and Corporations; Tarbell, Hist. of Standard Oil Company.]

7. In his testimony before the Industrial Commission, Mr. Havemeyer, President of the American Sugar Refining Company, said that "the mother of all trusts is the customs tariff law." Is this true? [Rep. Ind. Com., XIII, cxl–clvi, I, 23 (and references to testimony); Chicago Conference on Trusts, 171; Jenks, 44–48; Collier, The Trusts, 242–259; Bolen, Plain Facts, 112, 121.]

8. Do you know of any trusts built up on legal monopoly (patents)? Would it be desirable to change the patent laws? [Jenks, Trust Problem, 220; Ely, Trusts and Monopoly, 267.]

9. Should you prefer to engage in business for yourself or accept a position in a trust? In which do you think your chances of success would be greater? [Chicago Conference on Trusts, 57; Montague, Trusts of To-day, 90; Rep. Ind. Com., I, 31 (and references to testimony).]

10. Do you know any case where a monopoly has permanently reduced prices? Why? [Rep. Ind. Com., XIII, 19 (and references to testimony); Marshall, Principles of Economics, 130, note 1.]

11. Are there any other effects not mentioned in the text which have resulted from trusts? [Jenks, Trust Problem, chap. 10; Rep. Ind. Com., I, 33 (and references to testimony), XIII, 32.]

12. Describe the methods of promoting and financing a modern trust. [Meade, Trust Finance, chaps. 4–8; Jenks, Trust Problem, chap. 5; Collier, chap. 9; Rep. Ind. Com., XIII, 7 (and references to testimony).]

13. What is stock watering and why is it resorted to? [Hadley, Railroad Transportation, 54, note; Jenks, chap. 6; Meade, chap. 16, especially p. 303; Collier, chap. 11; Rep. Ind. Com., I, 12–16 (and references to testimony).]

14. Could harmonious action by all the States be secured to control trusts? [Coman, 330; Jenks, chap. 13; Montague, Trusts of To-day, 162–174.]

15. Why has Congress no power to control business wholly within a State?

16. What is interstate commerce? [Interstate Commerce Act, sect. 1; also in Snyder, The Interstate Commerce Act, 32.]

17. Would the advantages of large-scale production, together with the existence of combination and of monopoly, warrant the government ownership and management of a business?

18. Do you think the government has a right to say how private individuals shall carry on their business, as, for example, in a factory or in the meat-slaughtering industry?

SELECTED REFERENCES. CHAPTER XXVII

**Jenks: The Trust Problem.
**—— Industrial Commission Report, vols. 1, 2, 13, 19.
*Meade: Trust Finance.
*Montague: Trusts of To-day.
**Ripley (Ed.): Trusts, Pools, and Corporations.
*—— Trusts and Combinations, Report of the Chicago Conference on.

Baker: Monopoly and the People, 7–41, 267–284, 347–362.
Collier: The Trusts.
Ely: Monopolies and Trusts, chaps. 5, 6.
Jeans: Trusts, Pools, and Corners, chaps. 7–9.
Moody: The Truth about Trusts.
von Halle: Trusts, or Industrial Combinations in the United States, chaps. 2–4.

CHAPTER XXVIII

THE EMERGENCE OF THE LABOR PROBLEM (1860-1880)

341. The effect of the Civil War on the labor problem. — In one aspect the Civil War was the final act in a labor struggle which had dominated the history of the United States for the previous half-century — that of free versus slave labor. With the emancipation of the slaves the labor problem reaches a new phase and the emphasis from this time on is placed upon the betterment of the condition of the industrial classes. The same forces which had secured the freedom of the slave were now directed largely to the problem of ameliorating the condition of the wage-workers. The derangement of wages by the excessive issue of legal-tender paper money, the growth of manufactures, the introduction of machinery, and the increase of foreign immigration were all combining to produce a new set of conditions and to call for corresponding adjustments. After 1860, accordingly, the labor problem assumes a new prominence.

During the war thousands of men were drawn from productive industry; upon the conclusion of peace, 1,000,000 men were enrolled in the Union army. The ease with which this labor force was reabsorbed into the industrial organism, with little of the suffering that marked the disbandment of the Napoleonic armies, has always excited the wonder of historians. Chiefly responsible for this was the large amount of free land in the West, to which there was an unprecedented rush. In the South the problem was solved, temporarily at least, by the world's need of cotton. The change from war to peace was not made, however, without some difficulty and discontent, which found partial expression in labor agitation and conflicts.

342. The growth of a wage-earning class. — In 1860 the great mass of the people were still engaged in agricultural pursuits; as late as 1880 over 44 per cent. of that part of the population engaged in gainful pursuits were employed in farming. Nevertheless, there was a growing class of wage workers enrolled in manufacturing pursuits, comprising 21.8 per cent. of the total population in 1880, of whom it was estimated that at least four fifths were employed in factories. The distribution of the manufacturing population was, however, very uneven: of the 957,059 persons recorded by the census of 1850 as employed in the manufacturing industries, three quarters were in the New England States and New York, Pennsylvania, and New Jersey. In 1880 the total number was 3,837,112, and the proportion of those engaged in manufactures ran as high as 51 per cent. of the working population in industrial States like Massachusetts.

The development of manufactures and the accompanying growth of cities tended to concentrate men in larger masses for social as well as for industrial activities. As the capacity of factories increased larger numbers of operatives were brought together under one roof and management. At the same time the growing displacement of hand labor by machinery and the increased size of the business unit made the worker more dependent upon the owner of capital for his employment, and introduced new lines of social cleavage. In short, the introduction of the factory system had brought with it a set of conditions which are usually summed up under the title of the labor problem. Among these were the employment of women and children, the growth of labor organizations, the spread of conflicts between labor and capital, and the necessity of labor legislation to regulate these and other evils.

343. Population and immigration. — The industrial problems of this period were greatly influenced by the growth of the population, and by the rapidity and character of the immigration. After 1860, owing to the Civil War, the rate of increase in the population fell off considerably and never again

attained the *ante-bellum* growth; the total number rose from 31,443,321 in that year to 50,155,783 in 1880. Immigration also declined during the war, but soon after its close was renewed with increased vigor. In 1864 an act had been passed by Congress "to encourage immigration," according to which laborers might be engaged under contract in foreign countries, their wages being pledged in advance to pay for their transportation. This law was repealed after four years, but the business prosperity of the period 1867–72 proved even more potent in attracting laborers to this country. The need of laborers was great in every line of industry; the western States were establishing immigration bureaus to aid foreigners to come and settle with them; agents of foreign steamship lines began to compete more vigorously for this developing traffic, rates were cheapened, and an immense stimulus was given to the immigration movement. By 1873, the number of aliens coming to our shores in a single year had reached 460,000. The flow was temporarily checked by the crisis of that year and the resulting depression, but in 1879 reached the enormous number of 789,000, a figure not equaled again for twenty years thereafter. The two decades, 1861–80, saw an addition of 5,127,015 aliens to our population.

344. Industrial effects of immigration. — Owing to the great industrial expansion of the country at this time this large addition to the labor force — for the majority of the immigrants were in the most productive ages — was successfully absorbed. The settlement of the West, which, however, was effected chiefly by native stock, the building of railroads, the development of the iron and steel industries, all called for large supplies of skilled and unskilled labor. Had it not been for the great addition to our population by immigration, the industrial expansion of this period could not have proceeded as rapidly as it did, for the opening up of the West drew off thousands of native Americans and left a gap in the labor supply which must have checked the growing manufactures had it not been filled by the immigrants. The improvements in

the textile, boot and shoe, and other industries, and the introduction of automatic machinery, made it possible to draft relatively unskilled labor into the factories. The following table shows the extent to which foreigners concentrated in the manufacturing industries.

PERSONS ENGAGED IN DIFFERENT OCCUPATIONS, 1880.

Occupations	Per cent. of persons engaged who were natives of the U. S.	Per cent. of persons engaged who were natives of all foreign countries
All occupations.....	79.9	20.1
Agriculture.....	89.4	10.6
Professional and personal service	75.5	24.5
Trade and transportation.....	74.7	25.3
Manufacturing, mechanical, and mining.....	68.0	32.0

Up to this time almost nine tenths of the immigrants were from Germany, Ireland, Great Britain, Canada, Norway, Sweden, and Denmark, and were vigorous, thrifty, quick to learn, and easily assimilated. On the whole, however, they were mostly unskilled laborers and took the lower places in the industrial organism, while the native workers moved up into higher ones. The United States presented the remarkable spectacle at this time of a nation developing her agricultural and her mechanical industries with nearly equal rapidity, and forging to the front rank in both.

345. Early employment of women and children. — While women and children have always assisted in the work of the family, it was not until the development of the factory system that they became a factor in the manufacturing industries. During colonial days the household manufactures were carried

on largely by the women as a part of their general domestic duties; from the days of Penelope, the faithful wife of Ulysses, spinning and weaving and making up of garments had been the peculiar task of the housewife. With the removal of the textile industries into the factories many women naturally followed them and became independent workers outside of the home; but for a long time the employment of women was limited to this and a few similar industries. Miss Harriet Martineau, who visited America in 1840, stated that she found only seven occupations open to women: teaching, needle-work, keeping boarders, work in the cotton-mills, type-setting, book-binding, and domestic service. By 1850, when statistics were gathered for the first time, it was found that the 225,298 women employed in manufacturing establishments constituted 23.3 per cent. of all employees thus engaged. In several industries where special rapidity or lightness of touch were required the women outnumbered the men, as in the manufacture of cotton-goods, hosiery, hats and caps, gloves, rubber goods, millinery, umbrellas, etc. In 1860 the proportion of women employees was about 21.3 per cent., or one woman to every 3.7 men.

346. Effect of the factory system on the employment of women and children. — The year 1850 witnessed the largest proportion of women workers in the manufacturing industries, although the next thirty years saw a great increase in the absolute number employed. In 1880 there were 631,034 women engaged in manufactures, or 16.7 per cent. of the total employees. This proportional decline was probably caused by the development of industries that called for heavy manual labor and physical strength, such as the iron and steel industries which experienced their greatest growth during this period. On the other hand, a somewhat larger proportion of women had gone into other occupations, such as domestic and personal service. Of the 2,647,157 women engaged in gainful occupations in 1880, almost half or 44.6 per cent. were employed in this way, while 23.8 per cent. were in manufacturing and 22.5 per cent. in agricultural pursuits.

Prior to 1870 no statistics were gathered in the United States of the number of children engaged in gainful occupations; the census of that year showed that 739,164 children between ten and fifteen years of age were thus employed, of whom 114,628 were in manufacturing establishments. During the next decade the number increased 58.7 per cent., the census of 1880 showing a total of 1,118,356 children in all occupations. The disclosure of such an undesirable tendency called forth restrictive legislation in most of the States and the number declined thereafter both absolutely and relatively.

347. Labor legislation. — Prior to 1880 there was very little labor legislation in the United States. As Dr. Cunningham remarks, so long as the possibility of settling on the public lands existed, the necessity of taking active steps to protect the interests of labor had never been recognized. "The government has been inclined to give facilities for the accumulation and profitable employment of capital, as the best expedient for promoting the development of industrial employment and the good of the community." While some attempts were made to protect the interests of labor, the legislation previous to the Civil War was practically confined to the subjects of imprisonment for debt, mechanics' liens, the education of children employed in factories, and similar matters. In 1866 Massachusetts[1] took the lead in the direction of greater legislative protection to the working classes by the passage of an eight-hour law for children under fourteen years of age, though this was unfortunately changed to ten hours the following year. A little later (1869) an act was passed providing for the establishment of the first bureau of statistics of labor. Other laws followed, fixing the hours of labor for women and for children under eighteen years of age at sixty per week, and providing for factory inspection and the safe-guarding of dangerous machinery. Similar legislation was enacted in other States, directed for the most part to protecting the interests of the weaker members of the industrial body; of legislation in favor of adult male workers there was as yet practically no sign.

[1] Ohio had passed a temporary ten-hour law for women and children under eighteen years as early as 1852.

The redress of their grievances was left to them to secure by their own efforts. In this fact lies the key-note of the history of labor during this period, and one of the causes for the organization of labor.

348. The rise of trade unions. — In the labor organizations in the United States two distinct types of trade unions may be noted — the local and the national (or international) unions. The former, which comprises only members who live and work in the same locality, forms the basis of all labor organizations, and dates back to the beginning of the century. It was not until 1850 that the first national union — that of the printers — was formed; after this the movement spread rapidly, and by 1860 twenty-six trades were stated to have had national organizations.

The Civil War diverted men's energies temporarily from labor struggles, but upon its cessation various problems presented themselves for solution. The issue of government paper money, which had greatly depreciated, called for a readjustment of the wage contract, while the absorption into the ranks of peaceful industry of the disbanded soldiers was not carried through without difficulty. During the later years of the war several of the strongest national unions were formed: the locomotive engineers organized in 1863 and in the following decade and a half their example was followed by the cigar-makers, bricklayers, railroad conductors, iron and steel workers, and granite cutters. This period witnessed a considerable advance in the character and strength of the unions, as well as in the public appreciation of their aims. By 1869 they were sufficiently powerful to secure the passage of an eight-hour law by Congress for all Federal employees, although it remained for many years practically a dead letter.

349. The Knights of Labor. — The final step in the organization of labor, that of uniting all union members in the United States in one great association, was also taken during this period. Up to this time the unions had been composed of men in the same trade or occupation, but now the effort was

made to bring all men of any trade whatsoever into the same organization. The first attempt was made in 1866 by the National Labor Union, which had only a brief existence, being completely wrecked in 1872 on the rock of politics. More successful was the organization known later as the Knights of Labor. Organized in 1869 as a secret society by Uriah S. Stevens, a Philadelphia garment cutter, it grew at first but slowly. The mystery which surrounded it, even the name being kept a secret, exposed it to attacks and misrepresentation, so that in 1881 the element of secrecy was abolished. The objects declared in the preamble were "to bring within the folds of organization every department of productive industry, making knowledge a standpoint (*sic*) for action, and industrial and moral worth, not wealth, the true standard of national greatness." They wished "to secure to the workers the full enjoyment of the wealth they create, sufficient leisure in which to develop their intellectual, moral, and social faculties, all of the benefits, recreation, and pleasures of association." To secure these they demanded, among other things, the referendum, the establishment of bureaus of labor statistics, coöperation, reserving of public lands for actual settlers, the abrogation of unequal laws, a weekly pay-day, mechanics' lien laws, abolition of the contract system of labor on public works, substitution of arbitration for strikes, prohibition of the employment of children under fourteen years of age, the eight-hour day, etc. The real growth of the order dates from about 1881, so that the subsequent history can be told best in the next chapter. Its platform is of interest here, however, as showing the aims of labor unions at this time.

350. Industrial disturbances. — While trade unions in the United States have never been formed purely, or even primarily, as strike organizations, this method of enforcing their demands was soon resorted to as they became conscious of their strength. Yet as late as 1874 an American writer could say: "Strikes in this country have not been very serious nor long protracted." Indeed, according to the only available

statistics, up to 1867 there were only three years in which more than ten strikes had occurred; after that time, however, only one year shows a smaller number than ten. A number of strikes was inaugurated in 1872 and 1873 by the Grand Eight-hour League, which were unsuccessful except in the case of the building trades of New York City. The crisis of 1873 and the resulting depression caused great industrial disturbances, but on the whole the time was not prolific of strikes. Sooner or later, however, the changes which had taken place in our industrial development, the growth of large capitalistic industries and of the factory system, were bound to result in a struggle of organized labor with capital.

The railroad strikes of 1877 were the first important exhibition of the growing power of labor, and directed public attention forcibly to the industrial problems involved. In that year strikes occurred on the Baltimore and Ohio, the Pennsylvania, and other railroads, which by reason of their magnitude and their wide-reaching effects have become historic. Reductions had been made in the wages of the employees to offset the decline in business after the crisis of 1873, the tonnage and length of freight trains had been increased, and various other causes for dissatisfaction on the part of the employees had occurred, which finally led to wide-spread strikes on a number of lines, but especially on the two systems named. Violence was used, property destroyed, and armed conflicts took place between troops and strikers, resulting in considerable loss of life. The country awoke to the fact that our growing industrialism had brought with it serious problems as well as increased wealth.

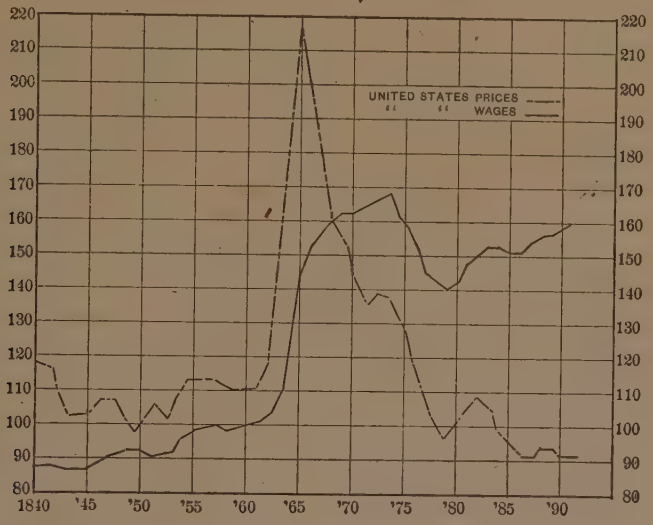
351. Wages. — One of the claims of organized labor is that as a result of their efforts wages have been raised. Whether this is true or not, it can hardly be disputed that the general tendency of both nominal and real wages in the United States during the entire history of the country has been upward. Owing to the derangement of the currency during and after the Civil War the movement during the period between 1860

and 1880 cannot be altogether satisfactorily stated. A very crude method of comparison of the average annual wage of all employees in twenty-two industries shows an increase from $335 in 1860 to $346 in 1880. While the immediate effect of the currency inflation was to depress wages relatively, since the prices of all commodities for which the workingman had to spend his earnings rose so much more rapidly than wages, by 1866 the workingman had regained all he had lost during the war. "The year 1866," says Professor Adams, "ushered in a new epoch, during which, it is no exaggeration to say, the American workingman advanced in a manner unprecedented in this country in which steady progress has been the rule since the establishment of the Union." The crisis of 1873 caused a temporary fall in wages and an increase in unemployment, but by 1880 wages had reached a higher point than ever before. According to the Aldrich report, which in spite of serious defects of method affords the best data for present purposes of comparison, relative wages averaged according to importance rose from 100 in 1860 to 143 in 1880; on the same basis they had been 82.5 in 1840. The same fact is still more clearly illustrated by taking a few specific cases of wages, which are briefly presented in the following table compiled from returns given in the Tenth Census:

Occupation	1860	1880
Common laborers (N. H.)	$6.00	$7.08
Common laborers (Ind.)	5.40	6.00
Mechanics (R. I.)	9.00	11.50
Mule spinners (Mass.)	6.33	10.09
Frame spinners (Mass.)	3.28	5.38
Ring spinners (Mass.)	11.52	13.80
Weavers (Mass.)	4.44	6.44

352. Relation of wages to the cost of living. — Statements as to changes in wages are, however, comparatively meaning-

less unless supplemented by statistics of prices; by comparing the two we can determine whether the condition of the working classes has improved or not. Taking 1860 as the base and calling prices in that year 100, the Aldrich report shows that the relative wholesale prices of 223 articles, averaged according to importance, had risen in 1880 to 103.4; in 1840 they were 98.5. That is to say, while prices had risen 3 per cent. in the



WAGES AND PRICES

When prices rose rapidly during the Civil War, wages lagged behind and did not overtake prices until after the war was over. But during the succeeding period of falling prices, the wage-earners were able to maintain wages at nearly the same level.

twenty years after 1860, wages had risen 43 per cent. It should be said, however, that rents, which have increased greatly, were not included in these figures; further, that the greatest rise occurred in foodstuffs, which comprise about 45 per cent. of the expenditures of an ordinary workingman's family, and lastly that no account is taken of unemployment in these statistics. But even after making allowances for these

facts and for errors in the methods of calculating the changes, it is clear that a vast improvement took place in the economic condition of the great body of wage-earners. The artisan in 1880 was able either to greatly improve his standard of living over what it had been in 1860, or, on the same standard, to save almost a third of his wages. It is a matter of common observation that he used his increased earnings for both purposes.

At the same time, the hours of labor have been appreciably shortened: in 1860 the average working day was eleven hours; by 1880 this had been reduced to slightly over ten hours. At the last named date only 26.5 per cent. of the recipients of regular wages worked in excess of ten hours per day as compared with 81 per cent. in 1830. When to these statistical evidences of improved well-being are added such things as better food, better education, and more abundant and better used leisure, it is evident that this period marked a great advance in the lot of the workingman.

353. Agricultural labor. — So far we have confined our attention to industrial workers; if we turn now to the history of agricultural labor we shall not find so bright a picture. While there was advance it was slow, and at no time so great as in the case of urban artisans. Between 1866 and 1879 there was a fall in the nominal wages (with board) of farm laborers of over 16 per cent.; if, however, we take into account the contemporaneous fall in prices, real wages show a rise of about 18 per cent. Little change had probably taken place in the length of the working day, though the introduction of agricultural machinery had undoubtedly done much to lighten the severe strain of farm labor.

In the South the labor problem was so different from that in the rest of the country as to necessitate separate discussion. With emancipation the conditions of labor were revolutionized: three million laborers passed suddenly from a state of slavery to one of freedom. The negroes, judging labor of any kind a badge of slavery, and esteeming idleness the greatest blessing of liberty, deserted the plantations in large numbers and sought

their pleasure in the towns. The problem in the South, therefore, was not so much the organization of labor, the reduction of hours and increase in wages, as the more fundamental one of how to secure on any terms the necessary labor supply. Immigration was directed to the South as little after the war as before it, and reliance had therefore to be placed mainly upon the negroes. The wage system was first introduced but was abandoned after a short trial: where the planter furnished rations and promised wages at the end of the year, he often found himself without the means to redeem his promises, while the idea of waiting so long for his pay was distasteful to the negro. Even worse was the system of weekly or monthly payments, as the negro usually refused to work again until he had spent all his earnings. The unsatisfactory character of the wage system is evidenced in part by a fall in agricultural wages of over 25 per cent. between 1867 and 1868.

354. Farming on shares. — After the failure of the wage system, it became evident that the negro must be given an interest in the crop and be made at least partly responsible for the consequences of his idleness. To secure this result the share system, or "cropping" system, was introduced throughout the greater part of the South. According to this plan small tracts of land of from 30 to 80 acres were rented to the negroes on shares: if the tenant furnished his own tools, seed, and rations — which was seldom the case — he received two thirds of the crop; if he furnished his own food, but had his capital supplied, he kept half of the crop; but if he was furnished with everything by the landlord, he was entitled to only one third of the crop. While this system secured better results than the preceding wage system, in stimulating the interest of the negro, it led to a more rapid deterioration of the land.

In view of what has just been said the conclusion is inevitable that the industrial efficiency of the negro was not improved by emancipation; his incompetence was a serious handicap to the industrial advance of the South. The generation that grew up in the period following the Civil War lacked

the industrial training received by their parents under slavery, and consequently showed a much smaller proportion of really skilled laborers. The work of securing for them this industrial education is the problem of negro labor in the South to-day, and as such will claim our attention in the next chapter.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XXVIII

1. What conditions are necessary to the rise of a distinct dependent wage-earning class? [W. J. Ashley, English Economic History, part 2: 220; also in the The Early History of the Woollen Industry, Publ. Amer. Econ. Assoc., II, 368; Adams and Sumner, Labor Problems, 4–14.]

2. What were the chief nationalities of immigrants up to 1880? Their geographical and industrial distribution? [Tenth Census, vols, I, II; Adams and Sumner, Labor Problems, 72; Hall, Immigration, chap. 1; Mayo-Smith, Emigration, chap. 3.]

3. What has been the effect of the employment of women on the home? [Levasseur, The American Workman, 338; Wright, in Tenth Census, II, 20 (552); Adams and Sumner, 52; Hobson, Evol. of Mod. Cap., 319.]

4. Are women supplanting men in industry? [Levasseur, 335; Wright, Ind. Evol., 203, 211; Adams and Sumner, 56; Walker, Discussions in Econ. and Stat., II, 241–244; Bliss, Encycl. of Soc. Ref., art. Women's Work and Wages.]

5. What effect does the employment of women and children have on wages? on the total income of a family? [Hobson, Evol. of Mod. Cap., chap. 12; Adams and Sumner, 55; Wright, Ind. Evol., 210; Levasseur, 336–358; Bliss, Encycl. of Soc. Ref., art. Women's Work and Wages.]

6. Can the interests of labor be best promoted by protecting capital or by direct legislation concerning labor? [Taylor, The Modern Factory System, 177–227; Webb, The Case for the Factory Acts, 192–223.]

7. Describe the history of the National Labor Union and the causes of its failure. [Coman, 290; Ely, Labor Movement, 69–70, 333–341.]

8. Are strikes usually called in periods of prosperity or depression?

9. Describe the Knights of Labor more fully. [Wright, in Quart. Journ. Econ., Jan., 1887; Wright, Ind. Evol., 246–252; Powderly, Thirty Years of Labor, chaps. 4, 5, 6, 13; Rep. Ind. Com., XVII, part 2, chap. 2; McNeill, chap. 15.]

10. What is the referendum? Is it in use in the United States to-day? [Bliss, Encycl. Soc. Ref., arts. Direct Legislation and Referendum; Oberholtzer, The Referendum in America, in Penn. Univ. Publ. Pol., Econ. and Pub. Law Series, vol. 4; Oberholtzer, Law Making by Popular Vote, in Annals, II, 324–344.]

11. What was the effect of the railway strikes of 1877 on the cause

of labor? [Wright, Ind. Evol., 201–206, 301–6; Spofford's American Almanac for 1878, pp. 105–112; 1st An. Rep., Bureau of Labor Stat. of Ohio, 287–289.]

12. Describe some of the early attempts at coöperation by the trade unions. Were they successful ? [Adams and Sumner, 397–401, 413–419; Parsons, Coöp. Undertakings in Europe and America, in Arena, XXX, 159–167; Hist. of Coöp. in the U. S.; Bolen, Getting a Living, 67–96; Bemis, Coöp. Distrib., in Bull. of U. S. Dept. of Lab., no. 6, 610–644.]

13. What was the Aldrich report? What are "index numbers," and the meaning of the figures in the Aldrich report? [Bullock, Intro., 220; Hadley, Econ., 193–195; Spahr, Distrib. of Wealth, 103.]

14. Define absolute and relative wages; nominal and real wages. [Gide, 492–496; Bullock, Intro., 402, 405; Levasseur, The Amer. Workman, 393.]

15. What effect did the issue of greenbacks have on wages? [Mitchell, Hist. of Greenbacks, chap. 5; Dewey, Fin. Hist., 292–294.]

16. Give some specific instance of changes in wages and cost of living with which you are familiar.

17. Was the falling off in cotton production in the South from 1860 to 1870 due more largely to lack of capital or unwillingness of labor?

SELECTED REFERENCES. CHAPTER XXVIII

**Adams and Sumner: Labor Problems, chaps. 2, 3, 6, 7, 12, 13.
**——— Tenth Census (1880), vol. 2.
*McNeill: The Labor Movement, chap. 5.
**Mayo-Smith: Emigration and Immigration, chaps. 1, 3, 7, 8, 12.
*Mitchell: Organized Labor, chap. 8.
*Wright: Industrial Evolution of the United States, chaps. 24–26.

Carnegie: Triumphant Democracy, chaps. 5, 8.
Ely: The Labor Movement in America, chap. 3.
Fleming: Industrial System in Alabama after the Civil War.
Powderly: Thirty Years of Labor.
Simonds: Story of Manual Labor, 435–464, 626–670.
Wells: Recent Economic changes, chaps. 9, 10.

CHAPTER XXIX

LABOR AND LABOR ORGANIZATIONS (1880-1906)

355. The growth of population. — The population of the United States increased from 50,156,000, in 1880 to 83,960,000 in 1906, not including the population of the outlying possessions. It is evident that such an enormous increase in numbers must have had far-reaching effects upon our industrial growth, not merely by supplying additional labor force, but by creating new demands for the products of industry. As a result of its absorption to a large extent in industrial establishments there has at the same time gone on a more than proportionate growth of the urban population, which in the course of a century has increased from about 3 to 33 per cent. of the total. Especially since the development of the factory system after 1850, and even more in the last two decades, an increasing proportion of the population has gravitated to the cities. This is especially true of the recent immigrants, who are concentrating in our industrial centers, partly because they find there friends and opportunities for immediate employment, and partly because more of them come from large cities in Europe than was formerly the case. The table on top of page 435 presents briefly the more important facts as to the growth, composition, and distribution of the population since 1850:

356. The composition of the population. — It will be noticed that in spite of the large foreign immigration the rate of increase in the population has fallen off. As the country has become more thickly settled, the economic limits of production have checked the rapid growth of the population. Of more serious import is the fact that the rate of growth of the native-

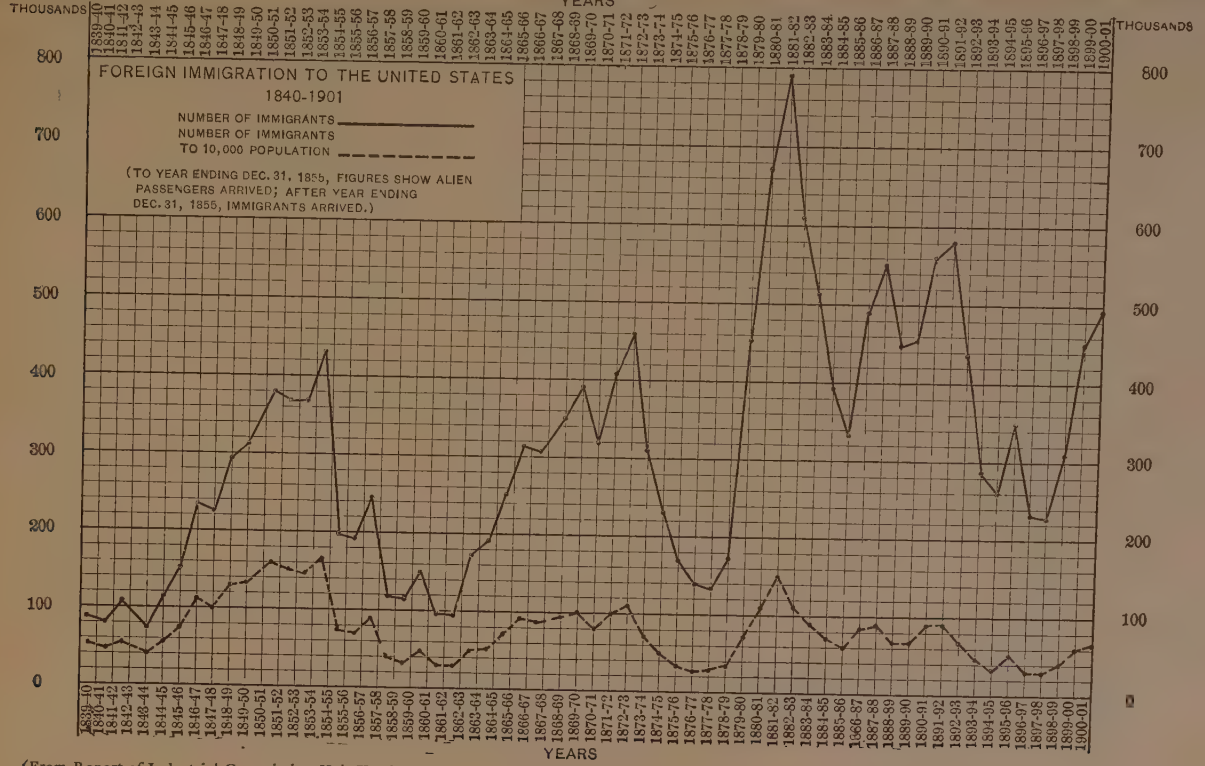
THE POPULATION OF THE UNITED STATES, 1850–1900

Date	White	Colored	Total	Percentage of Growth of Population during Decade ending with Year	Immigration during Decade ending with Year	Percentage of Total in Towns of 8,000 Inhabitants or Over
1850 ..	19,553,068	3,638,808	23,191,876	35.9	1,713,251	12.49
1860 ..	27,001,491	4,441,830	31,443,321	35.6	2,598,214	16.13
1870 ..	33,678,362	4,880,009	38,558,371	22.6	2,314,824	20.93
1880 ..	43,574,990	6,580,793	50,155,783	30.1	2,812,191	22.57
1890 ..	55,166,184	7,903,572	63,069,756	24.9	5,246,613	29.20
1900 ..	66,990,788	9,312,599	76,303,387	20 7	3,844.359	33.10

born population has declined with the influx of immigrants and is to-day slower than that of the foreign stock. General Francis A. Walker was of the opinion that in the long run immigration had not increased the population of the United States, but had merely "replaced native by foreign stock." In 1900 the composition of the population was as follows:

Group	Total Number	Per cent. of Total Population
Native born with native parents	41,053,417	53.5
Native born with one or both parents foreign.....	15,687,322	20.6
Foreign born	10,250,049	13.7
Colored	9,312,599	12.2
Total.....	76,303,387	100.0

Probably no modern nation in the world is composed of such heterogeneous elements as the American. Within the past century more than 20,000,000 immigrants have come to these shores from every country in Europe. Formerly, most of the immigrants were from Germany, England, or Ireland, and were easily assimilated by the native population. During the past twenty-five years the character of immigration has



(From Report of Industrial Commission Vol. XIX).

greatly changed, large numbers coming from Austria-Hungary, Russia, Poland, and Italy. Less easily amalgamated with the native population, and bringing with them a lower standard of living, their presence has given rise to new and serious problems.

357. Restrictive legislation. — So far most of the immigrants have settled north of Mason and Dixon's line, and recently seem to have preferred the more thickly peopled sections of the country; in 1900 over 86 per cent. were to be found in the North Atlantic and Central States, while only 6 per cent. were in the South. The population of foreign origin is in excess of the native-born in sixteen States of the Union. To-day the native American is to be sought, not in the home of his Puritan ancestors, but in the South and West, in the newer sections of the country.

The enormous increase in the number of immigrants, their changed character and tendency to concentrate in the large industrial centers, and finally the taking up of the available lands in this country, has led to legislation restricting immigration. The States of New York, Massachusetts, and California passed laws regulating immigration into their territory, but these were declared unconstitutional in 1876. The first restrictive federal legislation was an act passed in 1882 limiting Chinese immigration for ten years; two years later the restriction was made absolute. In 1882 also a law was passed forbidding the landing of convicts, idiots, lunatics, and persons liable to become a public charge, and requiring their return at the expense of the ship which brought them here. In 1885 the importation of convict labor was forbidden. The more recent legislation of 1891, 1893, and 1903 has not materially changed these provisions; an attempt to impose an educational restriction on immigrants was made in 1897, and again in 1906, but failed to become law.

358. Industrial distribution of the population. — As might be expected in an industrially developed country like the United States, most of the men are at work; 80 per cent. of

males over 30 years of age were returned by the census of 1900 as engaged in gainful occupations, a slight increase over the proportion so employed in 1880. The percentage of females over ten years of age at work for a money wage increased during the same period from 15.2 to 18.3 per cent. of all persons employed; this increase occurred chiefly in manufacturing and mechanical pursuits. A third of the population is still engaged in agriculture, but the proportion is constantly growing smaller, while the manufacturing and transportation industries for the most part absorb those who desert the fields; about 40 per cent. of the population is employed in these occupations. Almost two thirds (62.9 per cent.) of the immigrants find employment in manufacturing and mechanical pursuits and domestic and personal service, the males in the former and the females in the latter.

The majority of the foreign-born are unskilled laborers, and this concentration in a few occupations and in a few industrial centers has greatly intensified the evils of competition and has given rise to serious problems, such as the sweating system. It has aggravated the problem of unemployment and threatened to reduce wages to a lower standard of living in those localities and industries where the pressure is greatest. But in the long run the new infusions have been successfully absorbed by the native population. The labor unions have succeeded in enlisting most of the foreign-born laborers in their ranks, and have thus prevented the reduction of the wage level to the lower standard. The evil effects of this competition have also been partially averted by the movement of native labor into higher pursuits which called for greater skill; while the rough, heavy manual toil has generally been left for the recent immigrant.

359. The efficiency of labor. — The growth of large scale production, the concentration of industry, and the immigration of large numbers of unskilled, capitalless laborers have all tended to produce a wage-earning class, and have caused the status of the American laborer to approach more nearly that

of his European cousin. And yet foreign observers are agreed in attributing to American labor certain special characteristics: according to the commissioners of the British Iron Trade Association, "the American workman is generally very nimble-minded, versatile, alert, and intelligent, quick to pick up new ideas, and equally ready to apply them." Professor Levasseur is struck by their energy, ambition, and resourcefulness, and especially by the pains which they take to economize labor. From early colonial days labor has always been relatively scarce and high-priced and, wherever possible, machinery has been introduced to supplement human muscle and brain. As a result, the productivity of the American worker is greater than that of any other laborer in the world, and has made possible the enormous production described in the preceding chapters. On the other hand, accusations are often brought against the high pressure at which the American laborer is compelled to work by steam-driven machinery, the intensity and monotony of his toil, and the narrowing of the field for responsible labor. There is, however, less danger from monotony of work, as Professor Marshall points out, than from monotony of life, and of this there is certainly less in the case of the modern factory operative than of the peasant drudge. The immense increase in production brought about by the use of machinery is shown by the comparisons on page 440.

360. Labor legislation. — The very qualities which have made the American workman such an efficient producer have disinclined him to rely upon the government for improvment in his condition, and to trust rather to his own efforts for self-help. Government interference is accordingly not invoked to regulate the freedom of the wage-contract or of employment, which are regarded as constitutional rights; but legislative protection has been extended to the working classes by factory inspection and legislation, by laws regulating child labor, hours, and conditions of labor. About half the States have passed factory acts regulating the conditions of labor in factories and providing for their enforcement by the appointment of factory

inspectors. These laws generally provide for sanitary conditions and sufficient air space; for the health and safety of the employees against fire, the unhealthfulness of the work, and the danger from machinery; and for other forms of protection to the life, well-being, and morality of the employees.

Year of Production	Article Produced	Different Operations Performed	Different Workmen Employed	Time Worked		Labor Cost	Cost per Hour
				Hours	Min.		
1829–30	Wheat (hand).....	8	4	61	5	$3.55	$.058
1895–96	" (machine)..	5	6	3	19	.66	.21
1859	Boots (hand).....	83	2	1436	40	408.50	.28
1895	" (machine)...	122	113	154	5	35.40	.23
1813	Nails (hand)	3	3	236	25	20.24	.086
1897	" (machine)...	20	83	1	49	.29	.13
1850	Carpet (hand).....	15	18	4047	30	270.01	.06
1895	" (machine)..	41	81	509	1	91.26	.17
1891	Loading ore (hand)	1	1	200	—	40.00	.20
1896	" " (mach.)	3	10	2	51	.55	.22

Laws limiting the number of hours of labor have been passed by the Federal government and some fifteen States for those engaged on public works. Attempts to fix the hours of labor in private industries for adult men have generally been held unconstitutional, except for especially unhealthy or dangerous occupations such as bakeries, mines, smelters, etc. On the other hand, the length of the working day for women and children has been regulated in about twenty of the States; until 1880 Massachusetts had been the only State limiting the hours of labor of women and children. The employment of children was very generally regulated by the industrial States in the decade 1880–1890, and the number of children employed in manufactures declined 33.6 per cent. during that

period. Since 1890 there has once more been an increase (of 39.5 per cent.), almost to the figures of 1880, owing largely to the development of the cotton manufacturing industry in the southern States, where almost no factory legislation exists as

BREAKER BOYS AT A COAL MINE IN KINGSTON, PA.
After being mined, the coal is hoisted to the top of a "breaker," and then passes down chutes to the railway cars. On the way down the slate is picked out by breaker boys, and by means of screens the coal is cleaned and sorted into various sizes.

yet. In 1904 there were 1,752,187 children between the ages of ten and fifteen years at work in the United States, or 18 per cent. of all children of these ages.

361. Further protection to labor. — In common with other countries, especially England and Australia, efforts have been made in the United States to protect the interests of labor in other directions than those just described. More than twenty States have passed laws requiring wages to be paid weekly, bi-weekly, or monthly, and prohibiting "truck" payments, but most of these have been held unconstitutional. Nor has

the attempt to extend the liability of the employer for injuries received by his employees in the course of employment been much more successful. Under the common law an employer is bound to provide reasonably safe conditions of labor, but is not responsible for risks incident to the business, or for injuries caused by the negligence of a fellow-servant or of the employee himself. By invoking the principle of the fellow-servant the employer was generally able to evade all responsibility for industrial accidents. Consequently, eleven States have passed laws "which do away with the fellow-servant doctrine entirely, making the employer liable in all cases of accident, whether caused by fellow-servants or not, unless primarily caused by negligence, or by contributory negligence of the person injured," while some sixteen others have modified the common law on this subject. On the other hand, no attempt has been made by either federal or State government to provide for compulsory insurance against accident, sickness, or old age, although these forms of insurance have been developed by a few large employers, notably the railroad companies, and by the trade-unions.

362. Labor organizations. — The individualistic character of American law has led the courts generally to declare unconstitutional the well-meant endeavors of our legislatures to protect the working classes by statute. The American workman has therefore been forced to depend largely upon his own efforts for protection and improvement. The growth of labor organizations has proceeded *pari passu* with the industrial development of the country, and has been especially rapid since the Civil War. The early history of the Knights of Labor, a national amalgamation of mixed assemblies in which members of any trade were received, has already been described. In 1880 this was the most important labor organization in the United States; in 1886, the period of its greatest growth, it claimed a membership of 730,000. In that year it entered upon a series of disastrous strikes; later it came into conflict with trade-unions which had not joined its ranks; and finally

it became entangled in politics. As it lost in power and numbers its place was taken by the American Federation of Labor.

This organization was formed in 1881, with a membership of 262,000, by a number of unions which had become dissatisfied with the rule of the Knights of Labor. The platform adopted did not differ much from that of the Knights, but the basis of organization was essentially different. Whereas the government of the earlier organization was highly centralized and the order itself was composed of distinct assemblies with little local automony, into which workers in any trade were admitted, the Federation of Labor was its antithesis on all these points. It is a "confederation of trade and labor unions," each trade is organized separately, and the unions alone are represented in the national body. Great care is taken not to interfere with the local autonomy of the constituent unions, only matters of general interest coming before the national body. It has grown steadily in influence, which has generally been conservative, has avoided political entanglements, and has seen its membership grow from 200,000 in 1890 to 550,000 in 1900, and 1,745,000 in 1903. The railroad unions stand outside the American Federation of Labor with a membership of 125,000 in 1901. Altogether, about ten per cent. of the working population is enrolled in labor organizations.

363. Union methods and policies. — In order to control the conditions of labor the trade unions aim at a more or less complete monopoly of the labor market. This they may do either by bringing all workers in a trade within the organization, or by preventing non-union men from working. The policy of the "closed shop," the limitation of apprentices, and similar methods are used to enforce their monopolistic control; sometimes they have united with their employers by means of "exclusive agreements" to raise wages and prices and thus jointly mulct the public. A minimum wage and an eight-hour working day are two aims generally held by the trade unions. Piece-work is vigorously opposed by a number of the unions, although it or a similar method, such as the premium system,

is coming into more general use. While they always deny the imputation, many unions have opposed, and still do oppose, the introduction of labor-saving machinery, and have placed limitations upon output either by explicit rule or by social pressure. The boycott is a dangerous weapon in industrial disputes, which, however, seems decreasing in frequency and importance. So, too, resort to violence during strikes, whether toward strike-breakers or the property of employers, has happily fallen off as labor leaders have realized the necessity of not alienating public opinion. While insisting on the necessity of the right to strike, most of the unions have endorsed the principle of arbitration, and advocate the general use of the union label as a peaceful method of securing the enforcement of union conditions in the trade where the label is adopted.

364. Employers' associations. — The organization of employers for the purpose of extending their trade, and even of treating with labor, is not a new phenomenon. But the last ten years has seen the growth of a new purpose and new methods of organization which mark a distinct era in the labor movement in the United States. Probably the first national association of employers was the Stove Founders' National Defence Association, formed in 1886. It was followed by others, until at the present time there are national organizations in the seven industries of stove and furnace manufacturing, metal foundry work, lake transportation, machine construction, publishing and printing, marble cutting, and ready-made clothing. These associations are counterparts in those industries of the labor organizations with which they can and do conclude contracts regulating wages and conditions for practically the whole country. Furthermore, there has existed since 1895 a Federal organization of employers, corresponding, though but distantly, to the American Federation of Labor — the National Association of Manufacturers — with a membership of 500 local associations and 3500 manufacturing firms.

While the earlier employers' associations contributed greatly to the maintenance of industrial peace by collective or joint

bargaining with the labor unions, they devoted themselves chiefly to the extension of their trade. As the strength and power of the labor unions grew many employers thought they saw in their demands a menace to business, and some of the later organizations have been formed with the explicit purpose of opposing certain union principles. These militant associations formed in 1903 a federated "Citizens' Industrial Association of America," comprising 60 national associations, 66 State and district associations, and 335 local or municipal associations of employers. Unless they exhibit a more conciliatory spirit than is evidenced in their official utterances, some bitter fights may be expected between the now strongly organized forces of capital and labor, before permanent industrial peace is secured.

365. Industrial disputes. — While industrial disputes are not new they are intimately connected with the wage system, and have become prominent in the United States as the system of capitalistic industry has developed. The table on page 446 presents the most important facts for the twenty years, 1880–1900, in this connection.

It will be noticed that there has been a relative decrease of strikes since high-water mark was reached in 1886. In that year there were a number of disastrous strikes, accompanied by violence, destruction of property, and much bad feeling; these were inaugurated chiefly by the Knights of Labor, which lost much of its power after their failure. Since then the labor unions have been much more conservative in the use of the strike. As they have grown in strength their organization has improved and they have come under the control of more intelligent leaders. In the most strongly organized trades strikes are relatively fewer, but are more apt to be successful than in the weakly organized industries. Over one third of all the strikes have occurred in the building trades, in the coal and coke industry, and in the manufacture of metals and metallic goods. The most prolific cause of strikes is naturally the demand for increase of wages; over 58 per cent. involve the

STRIKES AND LOCKOUTS IN THE UNITED STATES, 1881–1900

Year	Strikes and Lockouts	Establishments Involved	Employees Involved	Wage Loss of Employees	Loss of Employers	Total Loss	Per cent. of Employees Involved in Strikes which		
				(In Thousands of Dollars)			Succeeded	Partially Succeeded	Failed
1881 .	477	2,937	130,176	3,391	1,926	5,317	42.9	13.5	43.6
1882 .	476	2,147	158,802	10,330	4,381	14,712	29.6	4.6	65.8
1883 .	506	2,876	170,275	7,343	4,993	12,336	36.8	11.4	51.8
1884 .	485	2,721	165,175	9,088	4,033	13,122	35.9	3.4	60.7
1885 .	695	2,467	258,129	11,564	4,844	16,408	47.5	9.8	42.6
1886 .	1,572	11,562	610,024	19,273	14,307	33,580	38.5	14.6	46.9
1887 .	1,503	7,870	439,306	20,794	9,518	30,312	33.6	7.0	59.4
1888 .	946	3,686	162,880	7,477	7,726	15,204	27.8	7.5	64.6
1889 .	1,111	3,918	260,290	11,789	3,243	15,033	28.9	25.1	46.0
1890 .	1,897	9,748	373,499	14,833	5,621	20,454	45.1	13.8	41.1
1891 .	1,786	8,662	329,953	15,685	6,793	22,478	27.0	7.7	65.3
1892 .	1,359	6,256	238,685	13,628	6,840	20,469	29.6	7.9	62.5
1893 .	1,375	4,860	287,756	16,597	4,440	21,038	23.4	15.8	60.8
1894 .	1,404	9,071	690,044	39,168	19,964	59,133	17.8	20.8	61.4
1895 .	1,255	7,343	407,188	13,836	5,656	19,492	39.9	11.1	49.0
1896 .	1,066	5,513	248,838	11,789	5,661	17,450	41.4	14.3	44.3
1897 .	1,110	8,663	416,154	18,052	5,166	23,269	38.9	37.3	23.8
1898 .	1,098	3,973	263,219	10,917	4,835	15,753	43.6	9.2	47.1
1899 .	1,838	11,640	431,889	16,643	7,822	24,465	54.5	14.3	31.2
1900 .	1,839	11,529	567,719	34,478	14,879	49,357	28.8	38.8	32.4
Total.	23,798	127,442	6,610,001	306,683	142,659	449,342	35.0	16.7	48.3

question of wages or hours; if to these be added the sympathetic strike, strikes against the employment of non-union men, and for recognition of the union, two thirds of all strikes during the past twenty years are accounted for. The public is, however, awakening to the conviction that it suffers the greatest injury as the innocent third party to every dispute, and is insisting upon more reasonable methods of maintaining industrial peace and of settling disturbances than by a resort to the strike or lockout.

366. Maintenance of industrial peace. — With the growth of organization on the part of labor and of employers the process of collective bargaining has been resorted to in many trades, by which a formal contract is drawn up and signed by representatives of the two parties as the result of a mutual agreement. Thus discussion is substituted for dictation. While this method involves the recognition of the trade union, it secures fair treatment to both laborer and employer, and generally obviates a resort to strikes. This system of joint conferences for the establishment of wage-scales dates from 1865 in the United States, when it was introduced into the iron industry; to-day it is a common method in the strongly organized trades.

Boards of conciliation are often provided for, which endeavor by means of discussion and mutual concession to prevent disputes from arising. Should a dispute, however, be unavoidable, provision is usually made for its reference to a board of arbitration, which may be selected by the disputants or consist of an outside body, voluntary sometimes and at others created by the State. Governmental boards of arbitration have been established by the Federal government and twenty-four of the States, but their powers and influence have so far been very limited in practice. Employers have often urged that the trade unions are too irresponsible under present conditions, and before they ask for collective bargaining and arbitration of industrial disputes, should be incorporated. Only after their legal incorporation could they be held liable

in damages for a breach of contract. So far, however, the unions have preferred their position of irresponsibility and immunity and have refused to be incorporated.

367. Wages and prices. — More important than problems of organization is the question as to whether the material condition of the laboring classes has improved. The decade 1880 to 1890 was one of great prosperity, except for a short period of depression in 1884, and the course of wages was steadily upward. During the long-continued industrial depression which followed the panic of 1893, wages declined somewhat, and there was considerable unemployment and distress among the working people; but the year 1898 saw the beginning of a period of unexampled prosperity, as a result of which wages have reached the highest point ever attained in the United States, while unemployment has been reduced to a minimum. Continuing the calculations of the Aldrich report,[1] we find that relative nominal wages rose from 143 in 1880 to 168.2 in 1890 and 187 in 1903; at the same time relative prices fell from 103.4 in 1880 to 95.7 in 1890, after which they increased again to about the former figure in 1903. By combining these two we find that relative real wages increased during this period from 100 in 1880 to 124.6 in 1903.

The average length of the working day at the same time decreased from 10.3 hours in 1880 to 9.6 hours in 1903, thus bringing the trade union ideal of a universal eight-hour day appreciably nearer. The material progress of the people can further be fairly accurately gaged by their consumption of certain semi-luxuries, like tea, coffee, sugar, tobacco, beer, etc., all of which show a steady increase. "Thus in the United States between 1871 and 1903 inclusive, the per capita consumption of coffee increased from 7.91 to 10.79 pounds, that of sugar from 36.2 to 71.1 pounds, that of malt liquors from 6.10 to 18.04 gallons, that of wheat and flour from 4.69 to 5.81 bushels." There has been a steady improvement in the standard of living, as is evidenced not only by increased wages and

[1] See chap. 28, sect. 351–352.

leisure, but by improved homes, dress, and other articles of consumption.

The facts so far presented concern only workers in the manufacturing and mechanical industries of the country. The improvement in the condition of farm labor has not been so rapid; indeed, after the Civil War there was a steady decline in farm wages, from $12.50 a month with board, in 1866, to $10.43 in 1879, when the lowest point was reached. Since then there has been a rapid and fairly steady rise in farm-wages to $16.40 in 1902, a gain of 32 per cent. since 1866.

368. Labor in the South. — The greater proportion of the labor in the South is furnished by negroes, and the majority of these are engaged in agriculture. According to the census of 1890 over 85 per cent. of the male and 96 per cent. of the female colored population in the United States were engaged in agriculture and domestic service. The question of the efficiency of this labor is therefore a vital one for the South. Is the negro as efficient a worker as the white man under the same conditions? Is his labor improving? The mass of testimony on both these points is in the negative, although there is, it must be admitted, great diversity of opinion. As the industries of the South become more diversified, the negro seems to lack the energy and intelligence to occupy the new positions. In agriculture he has confined himself almost exclusively to the cultivation of cotton (70.5 per cent. of negro farms raised cotton as the principal source of income in 1900, against 10.9 per cent. of similar farms cultivated by whites). Even the special skill that was possessed by many negro agricultural laborers, who had received their training under slavery, in cotton, tobacco, and rice culture, has been lost by the present generation. There has thus been a real loss in the industrial efficiency of negro labor: the skilled laborer has become an unskilled one. On this point Mr. Booker T. Washington says:[1] "I do not mean to say that all skilled labor has been taken out of the negroes' hands; but I do

[1] Future of the American Negro, p. 78.

mean to say that in no part of the South is he so strong in the matter of skilled labor as he was twenty years ago."

Vigorous efforts, led by Mr. Washington himself, are now being made in the South to educate the negro along lines of industrial efficiency and to make him a more reliable and com-

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CHILDREN AT WORK IN SOUTH CAROLINA COTTON MILLS

Children under ten years of age are frequently found in the southern cotton mills. In this great spinning room, with over 100,000 spindles in operation, several young boys may be seen carrying the bobbins upon which the yarn is spun, and helping to tend the machines. One operative can tend two of these machines, which contains a large number of spindles and spins hundreds of threads at once.

petent laborer. Encouraging as are the results, it is manifest that any such work of improvement must be slow and laborious. Within recent years there has been a considerable influx into the southern States of immigrants, notably Italians, who are supplying an increasing share of the labor needed in the in-

dustrial regeneration of that section, and are even competing with the negro in the cotton fields. The native white population has supplied most of the labor required by the new cotton factories, steel mills, etc., in which, owing to the lack of restrictive factory legislation, many of the abuses attendant upon the early growth of the factory system elsewhere are being reproduced.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XXIX

1. Explain the growth of cities in the United States. Is the movement true of other countries? [A. F. Weber, The Growth of Cities; Shaw, Mun. Gov't in Great Britain, 2–17; Strong, The New Era, 188–197; Bliss, Encycl. of Social Reform, art., City and Social Reform.]

2. Compare the racial composition of the population in an important manufacturing city to-day with that of twenty-five or fifty years ago. [Census volumes on Population.]

3. What proportion of our illiterate, criminal, or otherwise undesirable population is composed of foreign-born? [Adams and Sumner, 89; Mayo-Smith, chap. 8; Hall, Immigration, chaps. 5, 8; Rep. Ind. Com., XV, 285–292.]

4. Do you think immigration should be restricted? Why? [Rep. U. S. Com'r of Immigration; Mayo-Smith, chap. 12; Hall, part 3, chaps. 10–14; Bliss, Encycl. of Soc. Ref., art. Immigration; Croswell, Should Immigration be Restricted? in No. Amer. Rev., May, 1897.]

5. Should the Chinese restriction law be repealed? [Rep. Ind. Com., X, 747–802; Hall, chap. 15; Foster, Amer. Dipl. in the Orient, chap. 8.]

6. Describe the distribution of the important races in the United States. Why have they settled where they are? [Rep. Ind. Com., XV, 492–616; Wright, Practical Sociology, 56–59; Hall, 88–95; Willcox, The Distribution of Immigration in the U. S., in Quart. Journ. of Econ., XX, 523 (Aug., 1906).]

7. Describe the conditions in the slums of one of our large cities. [Rep. Ind. Com., XV, 449–492; 7th Spec. Rep. of U. S. Dept. of Labor; Hull House Maps and Papers; Bogart, Housing of the Working People in Yonkers, in Economic Studies, vol. 3, no. 5.]

8. Has the mixture of races through foreign immigration been a source of strength or weakness to the American nation? [Mayo-Smith, chap. 8; Hall, 98, 172; Rep. Ind. Com., XV, 304–316; Fisher, Alien Degradation of Amer. Character, in Forum, XIV, 608–615.]

9. What further labor legislation, if any, should be passed in the United States? [J. G. Brooks, The Social Unrest, chap. 12.]

10. Do you approve of trade unions? Why? [Gilman, Methods of Ind. Peace, chap. 7; Mitchell, Org. Lab., chaps. 17, 19; Bullock, Intro., 432–441; Seager, Intro., 386; Bliss, Encycl. of Soc. Ref., art. Trade Unions, IV, V.]

11. Is a labor union a monopoly? [Seager, Intro., 406–8; Bogart, Chicago Building Trades Conflict, in Pol. Sci. Quart., XVI, 121; also in Commons, Trade Unionism and Labor Problems, 94.]

12. Should trade unions be incorporated? [Gilman, chap. 6; Mitchell, chap. 26; Adams and Sumner, 271–279.]

13. What should be the attitude of strikers to non-union men who are willing to take their positions? [Gilman, 420; Mitchell, chap. 32.]

14. Do you approve of the open or closed shop? [White, *et al.*, in Publ. Amer. Econ. Ass., 3d Series, IV. 173 ff.; Rep. Ind. Com., VII, 715–722; V. S. Yarros, in Rev. of Rev., XXXI. 589.]

15. Describe more fully the American Federation of Labor. [Wright, Ind. Evol., chap. 20; Rep. Ind. Com., VII, 108–9, 420–440; Levasseur, 203–211; Aldrich, Amer. Fed. of Lab., in Econ. Studies of Amer. Econ. Ass., vol. 3, no. 4.]

16. If a universal eight-hour day were introduced, would there be more work for the unemployed? [Rae, Eight Hours for Work; Gunton, Wealth and Progress; Rae in Econ. Journ., vol. 1; Walker, in Atl. Mo., June, 1890.]

17. Are strikes necessary? Do they pay? [Rep. Ind. Com., XVII, lxii, Adams and Sumner, 206; Seager, Intro., 398; Sumner, Do We Want Industrial Peace, in Forum, VIII, 406–416; F. H. Foster, Trade Union Ideals, in Publ. Amer. Econ. Ass., 3d Series, IV, 173–210.]

18. What is meant by a boycott? A lockout? The sympathetic strike? Do you approve of these methods of conducting an industrial dispute? [F. S. Hall, Sympathetic Strikes and Sympathetic Lockouts; Mitchell, Org. Labor, chap. 33; Adams and Sumner, 175; Levasseur, 237–240, 250–257.]

19. Describe compulsory arbitration in New Zealand. [Gilman, chap. 14; Lloyd, A Country without Strikes; Adams and Sumner, 319–325; Rep. Ind. Com., XVII, 519–539.]

20. Describe the work done at Tuskegee Institute. [B. T. Washington, The Successful Training of the Negro, in World's Work, Aug., 1903.]

SELECTED REFERENCES. CHAPTER XXIX

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CHAPTER XXX

COMMERCIAL EXPANSION. CONCLUSION

369. Growth of the foreign trade of the United States. — No phase of its industrial development has attracted more attention or serves as a better index of its marvelous economic expansion than the growth of the foreign trade of the United States. The advance of this country as an exporting nation from fourth place in 1880 to the front rank in all the world in 1900 called attention to the advance which had taken place in our productive power and suggested the possibility of further changes in the movement of the world's trade. Until recently the people of the United States were occupied with the task of appropriating and developing the resources of the country, and, like all new countries, purchased more than they sold, running heavily into debt for supplies of capital and manufactured goods. This period may be said to have ended in 1876; up to that time in only three years — 1858, 1862, and 1874 — had the exports exceeded the imports, while since that date they have fallen behind in only three years — 1888, 1889, and 1893. During the first century of our national existence our exports were chiefly of agricultural products; the last three decades, and particularly the last ten years, have seen a great growth in exports of manufactures. The table on page 455 presents the most important facts relating to our foreign trade.

370. Exports. — Although the extractive industries still furnish nearly two thirds and agriculture alone over one half of the domestic exports of the United States, the characteristic phenomenon of the recent export movement has been the increase in the proportion of manufactures. It seems clear

FOREIGN TRADE OF THE UNITED STATES
(IN MILLIONS OF DOLLARS)

Year	Domestic Exports of Merchandise	Imports of Merchandise	Total Exports and Imports (including Re-exports)	Percentage which Agricultural Products formed of Total	Percentage which Manufactures formed of Total
1790	20.2	—	—	—	6.1
1800	31.8	91.2	162.2	80.4	7.8
1810	42.3	85.4	152.1	78.9	9.3
1820	51.6	74.4	144.1	80.6	7.5
1830	58.5	62.7	134.4	80.3	11.3
1840	111.6	98.2	221.9	82.8	9.9
1850	134.9	173.5	317.8	80.5	13.0
1860	316.2	353.6	687.2	81.1	12.7
1870	376.6	435.9	828.7	79.3	15.0
1880	823.9	667.9	1,503.6	83.2	12.5
1890	845.2	789.3	1,647.1	74.5	17.8
1900	1,370.7	849.9	2,244.4	60.9	31.6
1901	1,460.4	823.1	2,310.9	64.6	28.1
1902	1,355.4	903.3	2,285.0	62.8	29.8
1903	1,392.2	1,025.7	2,445.8	62.7	29.3
1904	1,435.1	991.0	2,451.9	59.5	31.5
1905	1,491.7	1,117.5	2,636.1	54.1	35.8

that the country has at last reached a stage in its economic development where it can compete on equal terms with the older nations of Europe. Of the six articles which supply the chief requisites for manufacturing — coal, iron, copper, wood, cotton, and wool — the United States is the largest producer of all but the last, and is therefore admirably equipped for manufacturing a great variety of commodities. About 80 per cent. of the manufactures exported consist of the following ten articles, in the order of importance: iron and steel manufactures, petroleum, copper, cotton manufactures, leather and its manufactures, agricultural implements, chemicals, wood

manufactures, paraffin, paper and its manufactures. While some of the articles involve very little change from the crude state, as petroleum, leather, and wood manufactures, the others represent a large labor cost, as manufactures of iron and steel, which includes tools, sewing machines, locomotives, type-

AN AMERICAN REAPER IN RUSSIA

Notice the contrast between the modern reaper and the primitive, clumsy harness and shafts. In southeastern Russia camels are largely used as beasts of draft and burden.

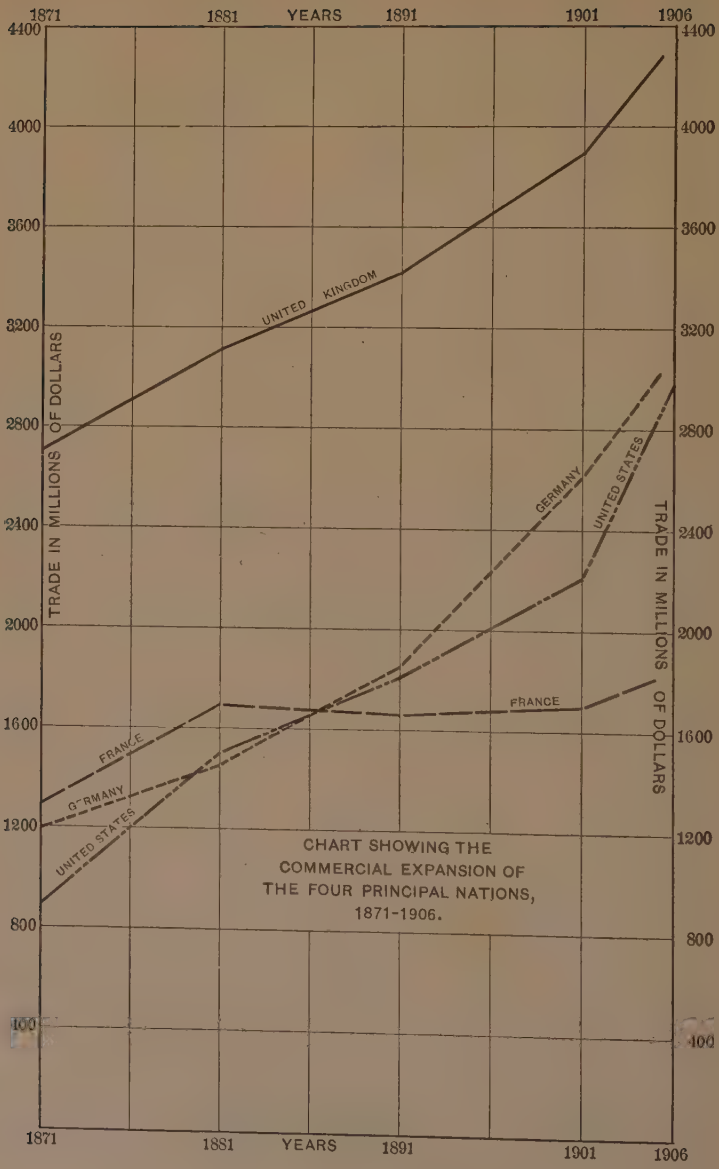
writers, and other articles requiring special skill or mechanical genius, as electrical apparatus (copper manufactures). In the exportation of iron and steel particularly, for whose production the United States is so pre-eminently fitted, we may expect to see a great growth in the future.

371. Imports. — The growth in our foreign trade has not been confined entirely to the increased exports. As we have produced more and become richer we have at the same time become better customers of other countries, and have imported more freely. But the character of the imports into the United States serves after all to give additional proof of the develop-

ment of American manufactures, almost all the increase being confined to manufacturers' materials, which make up 45 per cent. of the total, and to luxuries. We import, in other words, either the raw materials or partly manufactured goods for use in manufactures and the mechanic arts, or those things which we cannot produce at home.

After deducting the imports from the exports there remains a "favorable trade balance" to our credit of over $450,000,000 a year on the average for the last five years; this large excess of exports has been characteristic of our foreign trade since 1876, and is usually regarded as an indication of national prosperity. But it must be remembered that there are several important items which do not appear on the merchandise balance sheet, but which materially offset this excess. The domestic cost of the imports is much greater than it appears to be, for no allowance is made in these statistics for undervaluation, tariff duties, commissions, profits of importers, etc. In the second place, a large amount of our merchandise exports goes to pay for the expenditures of American travelers abroad, the interest on foreign capital invested in this country, payments to foreign shipowners for carrying our freights, and other similar expenses. But even after these deductions are made there remains a considerable annual balance in our favor, which is steadily being applied to the reduction of our foreign indebtedness.

372. Commercial expansion. — The enormous expansion of the export trade of the United States in 1900 and 1901 almost created a panic among European manufacturers, who viewed with alarm this "American invasion." And indeed the increase was startling: the excess of exports over imports grew from 56 million dollars in 1890 to 520 million in 1900 and 637 in 1901. Their fears have since somewhat lessened, as the great wave of those exceptional years has slightly subsided, but we may expect that in the future exports, and especially of manufactured goods, will remain permanently on a higher level than in former years.


1871
1881
YEARS
1891
1901
1906
4400
4000
3600
3200
2800
2400
2000
1600
1200
800
400
TRADE IN MILLIONS OF DOLLARS
UNITED KINGDOM
GERMANY
UNITED STATES
FRANCE
FRANCE
GERMANY
UNITED STATES
CHART SHOWING THE
COMMERCIAL EXPANSION OF
THE FOUR PRINCIPAL NATIONS,
1871-1906.

Certain changes of recent occurrence have given the United States a more commanding position in the world's markets, especially in the Orient, which will undoubtedly further our commercial expansion. These are the acquisition of the Philippines as a trading base, the completion of the Trans-Siberian railroad, the industrial awakening of Japan and China, the building of the Panama Canal by the United States, and the more energetic efforts to secure foreign markets for the growing surplus of American manufactures. On the other hand, with all our natural advantages, we are handicapped in our competition with European rivals by our failure to adapt ourselves to the prejudices of foreign customers, by our backwardness in commercial and technical education, and by our restrictive tariff policy.

At the same time, this expansion of our foreign trade has been accompanied by a shifting in the center of the export movement. While New York easily retains her commercial supremacy as a trading-port there has been a decline in the proportion of exports shipped from Atlantic ports, from 75 per cent. in 1894 to 61 per cent. in 1904. Most of this loss has gone to the Gulf ports, whose exports grew during the same period from 14 to 23 per cent. of the whole; the ports on the Great Lakes and Canadian border also showed a considerable gain. These facts indicate increased transportation facilities from every section of the country, which may be expected to increase in the same direction with the completion of the Panama Canal.

373. The domestic commerce of the United States. — "Vast as our foreign commerce has become in recent years, it is far exceeded in value and volume by our internal trade. The value of our domestic commerce is about thirteen times that of our foreign commerce, or about $28,000,000,000. The volume of goods exchanged is about twenty-four times that of our foreign exchanges." [1] Only about 7 per cent. of the value of the products of the United States in 1900 were exported,

[1] Webster, General History of Commerce, p. 440.

the rest being exchanged or consumed at home; the exports amounted to only $18 per capita. However we look at it, it is evident that our domestic commerce is very much more important than our foreign trade, although the latter attracts greater attention. The importance of domestic commercial movements is shown by a few facts: for the fiscal year ending June 30, 1904, over 28,000,000 freight cars were used on our railroads for the transportation of commodities; the receipts of live stock at five western points were 34,500,000 head; the domestic lake traffic amounted to 44,000,000 tons, the shipments of coal from Atlantic ports to coastwise destinations, which is the most important item in the coastwise trade, were 30,700,000 tons. The main currents of internal commerce, especially of grain, coal, lumber, and cotton, are yearly being subjected to more complete statistical measurement; in general these are from west to east, while there is a corresponding movement from east to west of manufactured goods.

374. The concentration of wealth. — Before concluding this survey of the industrial development of the United States, it is desirable to ascertain if possible to whom this vast increase of wealth is going. Equality of conditions and the wide diffusion of wealth have long been the boast of our Republic; are they less true to-day than they were fifty or one hundred years ago? In the half century, 1850–1904, the per capita value of all property in the country has exactly quadrupled; how has this been distributed? While no absolutely exact statistics exist on this subject, yet reliable estimates by scientific students all tell the same story — of great concentration of wealth in the hands of a few of the richest families. The character of the changes which have taken place in the last seventy-five years is perhaps best shown in the following study of probated estates in Massachusetts, made by the State Bureau of Statistics of Labor:

PROPORTION OF PROBATES AND PROPORTION OF TOTAL PROBATED WEALTH BY SPECIFIED CLASSES AND PERIODS, MASSACHUSETTS, 1829–1891

Classes	1829–31		1859–61		1879–81		1889–91	
	Per cent. of Estates	Per cent. of Total Wealth	Per cent. of Estates	Per cent. of Total Wealth	Per cent. of Estates	Per cent. of Total Wealth	Per cent. of Estates	Per cent. of Total Wealth
Under $500	38.69	1.84	21.45	0.65	16.35	0.32	15.18	0.35
$500 to 1,000	12.52	2.36	13.87	1.31	13.02	0.76	11.90	0.81
1,000 to 5,000	34.45	20.73	40.85	12.76	41.18	8.21	42.42	9.69
5,000 to 10,000	7.98	13.85	11.48	10.34	12.75	7.23	13.48	8.83
10,000 to 25,000	4.24	16.75	7.33	14.62	9.18	11.50	10.25	14.88
25,000 to 50,000	1.15	10.22	2.43	11.01	3.68	10.14	3.29	10.68
50,000 to 100,000	0.68	12.65	1.33	12.00	1.96	11.19	1.81	11.89
100,000 to 200,000	0.16	5.56	0.75	12.58	1.00	11.28	0.92	11.77
200,000 to 300,000	0.00	0.00	0.26	8.03	0.33	6.46	0.31	7.19
300,000 to 400,000	0.05	4.42	0.12	4.48	0.20	5.55	0.15	4.80
400,000 to 500,000	0.03	2.89	0.04	2.67	0.09	3.19	0.09	3.78
500,000 and over	0.05	8.73	0.09	9.55	0.26	24.17	0.20	15.33
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Number of probates	3,698		6,922		11,142		14,608	
Total wealth	$14,494,107		$53,256,794		$137,374,259		$155,558,788	

These figures show not merely that an astonishingly large proportion of the total wealth is in the hands of the very rich, but that this proportion has greatly increased. In 1893 Mr. George K. Holmes estimated from a study of the statistics of farm and home ownership in the United States in 1890 that "91 per cent. of the families of the country own no more than about 29 per cent. of the wealth, and 9 per cent. of the families own about 71 per cent. of the wealth." The great fortunes of the United States have been made possible by the unrivaled opportunities for the exploitation of natural resources, the appropriation of natural monopolies, and the development of new lines of trade and manufactures. The capital requisite for the prosecution of these industries has been accumulated for the most part by those already rich; the great mass of the workers has preferred to raise their standard of living by spending rather than to accumulate wealth by saving. There is danger, however, that the concentration of wealth under the ownership and control of the few may go too far, and threaten the very stability of our democratic government. The surest safeguard against these dangers lies in keeping open the door of opportunity to all alike, and providing for general education and the prohibition of all special privileges.

375. Summary: The colonial period.—The New World seems to have been reserved in all its wonderful richness of undeveloped resources for settlement by the Anglo-Saxon race. The aborigines who were found in the country at the first coming of the white man had not advanced far enough in civilization to exploit the mineral or agricultural wealth, but subsisted largely by the chase or by a primitive agriculture which barely scratched the surface of the soil. Although other nations were first on the scene they finally yielded the title to the continent of North America to the English. The motives which sent the early colonists to these shores were effective in selecting the most venturesome, energetic, and liberty-loving for the work of settlement. During the colonial period the work of the colonists was a constant struggle with nature, the

hewing of homes out of the forest, and the development of the wilderness. The industries of the colonists were determined largely by their environment and were scarcely a matter of choice; agriculture was of necessity the most important single industry, supplemented in New England and the Middle colonies by fishing and commerce. While manufactures were early attempted they were never developed far. Partly responsible for this was the restrictive commercial policy of England toward the colonies, which made their interests entirely subordinate to those of the mother country.

Although the work of the colonists involved unremitting toil and hard conditions, they were never carried away by materialism. From the beginning the American people has had ideals and has sought earnestly to realize them. They have not been swept on blindly by the forces of nature, but have deliberately sought to realize certain political, social, and economic ideals. In the simple conditions of an undeveloped agricultural community their realization seemed comparatively easy. While the accumulation of wealth was as yet slight, it was distributed fairly equally, and poverty was almost unknown. There was abundant opportunity for all who would exert themselves, and to labor itself there attached no social stigma. Wide-spread economic well-being characterized the end of the period.

376. Summary: The struggle for freedom. — The colonial period was brought to a close by the revolt of the colonies against the burdensome financial and economic policy of England. Political independence, however, was not followed immediately by either commercial or economic independence. Another war was necessary before the first was secured, while the second can hardly be said to have been attained until the second quarter of the nineteenth century. The economic development of the country after the Revolution followed in the main the same course which had characterized it before. During this period the carrying trade was developed to an extraordinary degree, while the foreign demand for our agricultural staples also gave

a great stimulus to agriculture. A beginning was made in manufactures, but these industries were confined as yet to the household. As during the colonial period, so also during the thirty years following the Declaration of Independence, the economic policy of the new States and later of the Union was largely dependent upon that of England and of Europe. The face of the American people was turned to the Atlantic and their gaze was directed across it. From this colonial attitude they were first rudely shaken by the Embargo and later by the War of 1812, which mark an important industrial transition in the economic life of the nation.

377. Summary: The westward movement. — The restrictive period inaugurated by the Embargo, during which foreign intercourse was almost completely cut off, introduced an industrial revolution which gradually transferred the textile and other manufacturing industries from the household to the factory. By the time of the Civil War the transition had been almost completely accomplished. More significant, however, and more important in the life of the growing nation, was the westward movement of the population. The great task of the American people, of appropriating and settling the vast territory to the west of the Alleghanies, was now undertaken on a large scale. Hand in hand with the westward movement, as a part of it, went the exploitation of the undeveloped resources of the country, the expansion and improvement of agriculture, and above all, the development of improved means of transportation and communication.

This period marks the emergence of a strong national feeling. For the first time the American people turned their back on the Atlantic and developed a commercial policy which looked to economic as well as political independence of Europe. The Monroe Doctrine was simply the political statement of the economic situation and policy. The problems of this period were internal and domestic: the disposition of the public lands, the encouragement of internal improvements, the protection of manufactures, the building up of the merchant marine, and

above all, the question of slavery. The material prosperity of the country and the growing economic integration of the different sections were threatened by the existence of this institution. The dictum of Lincoln, that "this country cannot endure half slave and half free," was as true economically as it was politically. The unwillingness of the people to permit the further extension of slavery led finally to the Civil War and to the abolition of the institution.

As a whole the period was one of marvelous material expansion and prosperity. The prodigality of nature, the bigness of the country, and the character of their work, led to the exhibition of some of the less desirable traits of the American people. But, while their manners were often rude, the heart and conscience of the nation were right. Economic well-being was wide-spread and poverty unknown outside of the larger cities, but already complaints were heard of labor troubles, of the increasing power of monopolies and corporations, and of the growing concentration of wealth.

378. Conclusion: The rise of industrialism. — The conclusion of the Civil War found the different sections of the country in different stages of economic development and confronted with varying problems. The South was left with a peculiar problem of its own. A new generation of free laborers had to be trained up to take the place of the former slaves. That, and the exploitation of the untouched natural wealth of this section, is the task of the South, upon whose solution she is now entering with the vigor of a young people. In the West, the free land has been practically all taken up, and the future will probably see there the application of a more intensive agriculture, and the slow, steady, non-dramatic extension of other interests — the growth of the population, of cities, and of manufacturing industries.

The industrial development of the Central and Eastern States is already far advanced, and with this growing industrialism have emerged numerous problems. The transference of manufactures from the household to the factory has been

completely effected, and the factory has grown in size and complexity. Large-scale production characterizes the manufactures, transportation, and distribution of most of the products of the country. With the expansion of industry beyond the limits of a local market, its organization on a larger scale became imperative. The formation of corporations and trusts has been one answer to this demand; the trust is a temporary form, but the organization of capital in larger masses is a permanent result of this movement. Association and coöperation are types of an advanced stage of economic development, and it is highly desirable that the benefits of these should be secured, while avoiding the evils of monopoly. Hand in hand with the organization of capital has gone that of labor. The organization of industry on a large scale, with expensive machinery, has resulted in the growth of a wage-earning class; these workers have organized on a national scale, and enforced their demands with fairly steady success. The changed character of immigration has complicated the labor situation, and has brought the question of its further restriction to the front.

Having settled the most pressing domestic problems resulting from the Civil War, the country has now directed its attention to the invasion of European markets. The industrial development of the country has been such as to permit not merely the satisfaction of domestic needs, but also the exportation of surplus manufactured goods. Again the American people may be said to have faced the Atlantic and directed their gaze toward Europe; the near future will undoubtedly see a change in their commercial policy corresponding to this altered economic attitude.

379. Conclusion: Economic integration. — The abolition of slavery permitted harmonious economic coöperation between the different sections of the country; and the last quarter century has seen rapid progress toward the complete industrial integration of the whole country. As interests have become larger, sectional divergencies have been lost in the growing unity of the greater whole. With the growth of the transporta-

tion system and the expansion of the population, industries have outgrown the narrow limits of local communities and even States or sections, and have become national in scope and importance. The problems have therefore been shifted largely from the local to the national arena, and the agencies of control have necessarily become those of the Federal government. Never before was the question of governmental regulation of private industries more important. True economic freedom, the equal opportunity of all in the race for wealth, can be secured only by the enforcement of law and conservative control. While an unrestrained policy of *laissez faire* has permitted the growth of some undesirable features in the political, social, and economic organism, there are many and hopeful indications at present not merely of the recognition of the need of public regulation, but of its actual application. There is also a growing sense of responsibility on the part of the average citizen and man of wealth. The great problem of the present in the United States is no longer that of appropriating the natural resources, but of wisely using and administering the great wealth of the country by those in whose ownership it rests.

There has been an enormous increase of wealth during this period, but there has been also a disproportionate concentration of wealth in the hands of a few. Old World problems of poverty — from which we had hoped we were happily free — have emerged in our cities, where destitution and vice have been localized and brought before the public gaze. On the whole, however, the present probably sees as wide and general a diffusion of plenty as any previous time in our national history. The future holds great promise and also grave responsibility for the wise and conservative solution of these far-reaching economic problems.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XXX

1. How much do the various items which do not appear in the merchandise exports or imports amount to yearly? What was the probable *real* balance in our favor in 1906? [Bullock, Intro., 332; Gide, 294–7; Bastable, Theory of International Trade, 73–78; Bacon in Yale Rev., Nov., 1900.]

2. The imports of Great Britain and of France are each year much greater than their exports; are they running into debt? [Gide, 292–8.]

3. With what countries is our foreign trade the largest? How do you account for this? [Mo. Sum. of Com. & Fin. — latest issue.]

4. Describe the method of settling international trade balances. [Hobson, Internat. Trade, chap. 8; Bullock, Intro., 331–336; Gide, 298–301; Seager, 360 ff.]

5. Is it true that "trade follows the flag"? [Reinsch, Colonial Government, 62.]

6. What is meant by a "favorable balance of trade"? [Bliss, Encycl. of Soc. Ref., art. "Balance of Trade"; Bullock, Intro., 324.]

7. What bearing does our consular service have on our foreign trade? Are our consular reports of service to American manufacturers? [C. D. Warner, Our Foreign Trade and Our Consular Service, in No. Amer. Rev., CLXII, 274.]

8. Would the people of the United States suffer if they severed all connection with the rest of the world? How would the people of European countries fare if they did the same? [Bastable, Theory of Intern. Trade, 17–21; Gide, 301–6.]

9. How does the trade of South America with the United States compare with their trade with Europe? Account for this. [Mo. Summary of Com. and Fin. — latest number.]

10. Is there any connection between the amount of our foreign trade and the maintenance of a protective tariff? What effect, if any, would its removal have on our foreign trade? [Wells, Our Merch. Mar., chap. 10.]

11. Account for the relative growth in the foreign trade of the gulf ports, and the decline of that of New York City. [World's Work, VIII, 4732 (May, 1904).]

12. What was the cause of the sudden increase in exports in 1901? [Lawson, Amer. Ind. Probl., chaps. 21, 22; Twelfth Census, VII, clxiv-clxx; Pop. Sci. Mo., LV, 62.]

13. Describe the "American invasion" of Europe. [Vanderlip in Scribner's Magazine, XXXI, 3, 194, 287; W. T. Stead, The Americanization of the World, 342–381; Century Mag., XXIX, 786; XXXVIII, 422; LI, 786; LXI, 422; Munsey's Mag., XXII, 538.]

14. "The sugar situation in Cuba led to the revolution which brought about our recent Spanish war, and thus indirectly the expansion of the American republic into imperialism." (Seligman, Princ. of Econ., 40.) Comment on this.

15. Ascertain to how many foreign countries the products of some local factory are sent; to how many States in the United States.

16. Is there a waste of labor involved in the constant exchange and transportation of products throughout the country?

17. Are the rich growing richer, and the poor, poorer? [C. D. Wright, Pract. Soc., 343–9; Ibid. in Atl. Mo., LXXX, 300; The Concentration of Wealth (symposium), in Independent, May 1, 1902; A. J. Ferris, Pauperizing the Rich.]

18. In a speech in April, 1906, President Roosevelt said: "As a matter of personal conviction, and without pretending to discuss the details or formulate the system, I feel that we shall ultimately have to consider the adoption of some such scheme as that of a progressive tax on all fortunes, beyond a certain amount, either given in life or devised or bequeathed upon death to any individual — a tax so framed as to put it out of the power of the owner of one of these enormous fortunes to hand on more than a certain amount to any one individual." Discuss this.

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*Holmes: Concentration of Wealth in the United States, in Political Science Quarterly, VIII, 589.

**Lawson: American Industrial Problems, chaps. 20–23.

*Leroy-Beaulieu: The United States in the Twentieth Century, 357–379.

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Gannett: The Building of a Nation.
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Valuable statistical and other information can also be found in the reports of the Department of Agriculture, of the Department of Commerce and Labor, of the Industrial Commission, of the United States Geological Survey (Mineral Resources); in Strong's Social Progress, the World Almanac, etc.; in the Publications of the American Economic Association, in the various economic journals, and also in the current magazines, especially The World's Work and The World Today. This list should be supplemented by one or more good histories of the United States; McMaster pays most attention to economic conditions, but the recent American Nation Series is also valuable in this respect.

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